# A Course of Twelve Lectures

ON THE

# STRUCTURE AND DEVELOPMENT

OF THE

# VERTEBRATE SKELETON.

*Recently delivered at the Royal College of Surgeons of England,*

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## LECTURE IV.

*(Concluded from page 377.)*

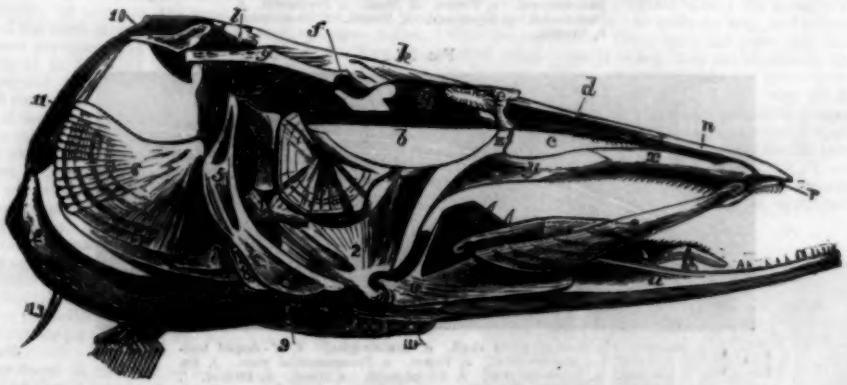
I HAVE here a pike's skull, and I purposely choose a vertebrate animal as far as possible removed from man, because if I shall succeed in identifying the whole or any number of parts of this skull with those that we have just become acquainted with in the human skull, it will become a comparatively easy matter to identify the intermediate terms. It is clear that taking such an extreme term as this, and making our points good in this, will at any rate give us a very fixed ground throughout the whole of the vertebrate series. Then I shall propose to clear up difficulties, as far as possible, by interpolating between the human skull and the pike's skull the various modifications in the long series of vertebrata between them which serve to connect and explain one by the other.

In the first place, I would point out that, looking at the skull generally, we may describe it in the same sort of general terms as those which we applied to the human skull, to begin with. There is, first, a long axis running along the floor of the cranial cavity (Fig. 28, *b*), and forming the roof of the mouth cavity; that is the basi-cranial and basi-facial axis; the posterior portion (*b*) constituting the basal axis of the cranial cavity, and the part in front (*c*) forming the basal axis of the facial cavity. Then again, above the axis there is a large bony chamber (Fig. 28, *f*, *g*, *k*, *l*), in which the brain is lodged, corresponding of course with the upper chamber in which the brain of man is lodged. Below, there are inferior arches constituted by the bones of the face (Fig. 28, *r*, *s*, *t*, *u*, *v*), lodging the teeth, and so on, which do in a certain way obviously correspond with those inferior arches which constitute the jaws and the mandible in man. So that it is obvious there is a general conformity, as far as this goes at any rate. But this would be a very small demonstration of unity of organization, and I propose therefore to take these different constituent portions, the cranio-facial axis, the upper arches, and the lower arches, to pieces, one by one, as we can do diagrammatically at any rate, and see how far, upon the first blush of the matter, we can discover parts that really correspond. If we find parts that do not correspond, then we will leave them aside, and take them up by-and-by when we have fuller knowledge, and go into other matters. At any rate, we may begin now with a preliminary view.

Fig. 29 is a view of the under surface of a pike's skull, and from that you will be able to have a sort of verification of the rough diagrammatic outline (Fig. 30). If we make a vertical section of the pike's skull, we shall find in the first place, forming the hinder part of the skull, a bone which is like one of the vertebræ of the vertebral column (Fig. 30, *a*); that will terminate in front in a mass of bone which is hollow in front—presents a cavity. At a long distance from that you find (in the dry skull you find nothing) a curious little bone shaped like a Y (Fig. 30, *b*). In front of that again—in the dry skull some distance in front of it—you would come upon a plate which is at first a good deal ossified (Fig. 30, *c*), then runs along until it terminates in a very long cartilaginous beak (Fig. 30); that, however, would obviously drop away in the dry skull. Underneath all these bones there would be a very long flat bone, with a groove above it, forming a kind of splint under the whole—a kind of floor (Fig. 30, *c*); that bone (Fig. 29, *b*), constitutes the great beam which is seen forming the greater part of the floor of the skull. Then in front of that there will be another (Fig. 30, *d*), the hinder end of which underlies the upper end of the larger piece (Fig. 30, *c*), the two being, if one may so say, spliced together, taking this kind of position (Fig. 30, *c*, *d*). The hindermost bone (Fig. 30, *a*), which articulates with the first vertebra of the neck, there can of course be no difficulty in identifying with that hinder bone of the human skull which partially articulates with the first bone of the neck, and is the basi-occipital, because, you recollect, the whole of this condyle was not formed by the ex-occipitals, but, to a certain extent, by the basi-occipital.

But it would be utterly hopeless to attempt to identify any other bones without some knowledge of their relations to the soft parts. In trying to make out the nature of the Y-shaped bone (Fig. 30, *b*), and the nature of the vertical plate (Fig. 30, *c*), we must obviously have recourse to the relations of these bones

FIG. 28.



Skull, face, and scapular arch of pike. *b*, Basi-temporal. *c*, Vomer. *d*, Nasal. *e*, Pre-frontal; behind it is the supra-orbital. *f*, Post-frontal. *g*, Squamosal. *h*, Frontal. *i*, Parietal. *n*, Internal superficial ethmoid. *r*, Pre-maxillary. *s*, Maxillary. *t*, Upper labial bone. *u*, Dentary. *v*, Articular. *w*, Angular. *x*, Palatine. *y*, Pterygoid. *z*, Ento-pterygoid. 1, Meta-pterygoid. 2, Quadratum. 3, Hyo-mandibular. 4, Symplectic. 5, Pre-opercular. 6, Opercular. 7, Sub-opercular. 8, Inter-opercular. 9, Branchio-stegals. 10, Supra-scapula. 11, Scapula. 12, Coracoid. 13, Epi-coracoid. 14, Pectoral fin.

to the nerves and soft parts contained in the skull; and our only ground for identifying these different bones with any parts of the human skull will be the finding these bones in exactly similar relations to parts which we already know in the human skull. If the brain in Fig. 30 were in its proper place, we should find that the pituitary body (Fig. 30, *s*) would be placed immediately behind the Y-shaped bone (*b*); the lobi inferiores and medulla oblongata would be behind (*m*); in front of them the cerebellum (*n*); further forwards the optic lobes (*o*); and then the very small cerebral hemispheres (*q*), which are quite insignificant in the fish; and at *p q* would be the two long pillars or peduncles of the olfactory ganglia. These would extend beyond this point (*p*, Fig. 30), and passing upon each side of the cartilaginous septum (*e*), would end at length in two dilatations, which are the olfactory ganglia, and from those dilatations we should have nerves given off to the olfactory sacs (Fig. 30, *q*). Furthermore, there are the two optic nerves, and the optic commissure: there is no true optic commissure in the fish; but, at any rate, the crossing of the optic nerves in this fish is placed between *h* and *b*, so that the hinder edge of the plate (*c*) lies immediately in front of that commissure.

the vertical plate of bone (Fig. 30, *c*), has its hinder edge enclosed as in a fork. That is, the relations of this bone (*c*) are exactly the same as the pre-sphenoid, as the relations of the Y-shaped bone are the same as the basi-sphenoid. But there was another point I mentioned in man. The peduncle of the olfactory lobe—that is, all that part of the olfactory lobes which lies between the origin of what we call the olfactory nerve and the giving-off of its filaments through the cribriform plate—lies entirely upon the pre-sphenoid. In the pre-sphenoid of the pike the peduncle occupies the same position, nor does it give off filaments until it has passed this point (Fig. 30, *c*), and reached the olfactory sacs (Fig. 30, *q*). These are the grounds upon which I take *c* (Fig. 30) to be the pre-sphenoid, *b* the basi-sphenoid, and *a* the basi-occipital; and we shall see, I think, all these determinations perfectly borne out by the connexions of these basal bones with the lateral bones of the skull. Then what is the great mass of cartilage which comes on in front, which is seen so well in the cartilaginous cranium of the pike? If we examine a cranium stripped of all those bones which are membrane bones, you will observe on each side of the nasal fossa there is a cartilaginous prolongation (Fig. 30, 3): this is obviously the lamina perpendicularis of the ethmoid and the internasal septum very much enlarged. And, as I shall have to point out by-and-by, the resemblance between this cartilaginous primordial cranium of the pike and this primordial cranium of the human fœtus and this primordial cranium of the pike is quite close. We identified the lamina

FIG. 29.

Base of pike's skull. To the left of *a*, Basi-occipital. *b*, Basi-temporal. *c*, Vomer. *d*, Nasal. *e*, Pre-frontal. *f*, Post-frontal. *g*, Squamosal. *h*, Prootic. *i*, Ex-occipital. *k*, Frontal.

FIG. 30.

Diagram of section of pike's skull. *a*, Basi-occipital. *b*, Y-shaped basi-sphenoid. *c*, Basi-temporal. *d*, Vomer. *e*, Pre-sphenoidal plate. *f*, Ex-occipital. *g*, Supra-occipital. *h*, Ali-sphenoid. *i*, Nasal. *k*, Frontal. *l*, Parietal. *m*, Medulla oblongata. *n*, Cerebellum. *o*, Optic lobe. *p*, Hemisphere; proceeding from it is the olfactory crus. *q*, Olfactory filaments and sac. *s*, Pituitary body. 2, Optic nerve. 3, Ethmo-vomerine cartilage.

You will recollect that in speaking of the relations of the base of the human brain to the basal axis of the human skull, I pointed out that the basi-sphenoidal bone forms the front wall of the pituitary fossa; and furthermore, in speaking of the development of the sphenoidal bone, I drew attention particularly to the fact that that nucleus of bone, that centre in which the basi-sphenoid commences, is at first placed at the front part of the pituitary fossa, or rather in front of the pituitary body. If we had no other argument than that, it would to my mind be quite sufficient to identify the little Y-shaped bone (Fig. 30, *b*) as the representative of the basi-sphenoid of man. But there are still further arguments. We find in the human skull, as everybody knows in human anatomy, that the optic commissure is placed immediately behind the hindermost part of the pre-sphenoid, and that the two diverging optic nerves do in reality enclose it as in a fork. Fig. 30 (2) shows the optic nerve in the fish; there is one on each side, and you observe

perpendicularis of the ethmoid by the fact that the olfactory nerves pass out on each side of it. This is what they do: the vertical portion (Fig. 31, *q*) separates the two olfactory sacs, as the lamina perpendicularis separates the olfactory sacs in man. So that, relation for relation, and part for part, we find that these bones (Fig. 30, *b*, *c*, *q*, *a*), defining them by their relations to fixed parts of the brain, are demonstrably, as it appears to me, the basi-sphenoid, the pre-sphenoid, the ethmoid, and the basi-occipital.

How is this connexion borne out by the relations of these basal bones to the lateral arches of the skull? I purposely leave out of consideration the whole of the lower bony portion (Fig. 30, *c*); this is a bone which at present I do not say cannot be found in the human skull, but we do not find anything of the kind in the same form upon the base of the human cranium. Now let us take the side walls of the occipital segment. In the pike's skull there are two bones (Fig. 30, *f*) arti-

culated below with the basi-occipital; those two bones have the vagus nerve going out through a hole in their front margin. In the human skull these are the ex-occipitals; and the eighth pair of nerves, as we know, pass out through the jugular foramina in front of them. We shall have occasion to see by-and-by that there is in this lateral arch a certain portion which belongs to the periotic capsule just in front of it; however, there is sufficient here to identify this bone with the ex-occipital. It forms part of the arch through which the medulla oblongata passes; the greater mass of it is behind the foramina for the eighth pair of nerves. Then the bone which joins those at the top can, of course, be nothing else than the supra-occipital (Fig. 30, *g*), inasmuch as it has the relation which this supra-occipital in man has to the lateral occipitals and the foramen magnum. So that, part for part, and bone for bone, there cannot be the slightest doubt that this occipital segment of the pike's skull corresponds precisely, except in the relations of form and size, to the occipital segment of the human skull. That is so much gained.

FIG. 31.

Pike's skull from above. *d*, Nasal. *c*, Pre-frontal. *g*, Squamosal. *i*, Epiotic; at the mid-line between the epiotics is the supra-occipital. *k*, Frontal. *l*, Parietal. *n*, Internal superficial ethmoid. *o*, External ditto. *q*, Cartilaginous ethmoid and septum nasi.

Connected with the basi-sphenoid in man we had two great lateral masses, which are called the wings of the basi-sphenoid—the great ali-sphenoids. You will recollect it was their essential character to have the third division of the fifth nerve passing out either through their posterior margins or immediately behind them; at any rate, the great mass of those bones was in front of the third division of the fifth; and, of course, below, these bones are connected with the basi-sphenoid. Now, the basi-sphenoid in the pike is connected in the same way with two triangular bones (Fig. 30, *h*)—very small in comparison—and those bones have coming out behind them the third division of the fifth nerve, which supplies the same part in the pike as in man. Therefore, having a connexion with the basi-sphenoid below, and having the same relations to the fifth nerve, and, I may add, the two optic nerves, there can be no doubt in my mind that this corresponds in the same way with the ali-sphenoids of man, as that corresponds with the ex-occipitals of man.

The orbito-sphenoids in man, the alæ parvæ, lie immediately above the optic nerves; but in the pike's skull we find nothing but membrane. These bones are not represented by any distinct ossification, but merely a membranous wall; but so far as these other parts that we have been speaking of are concerned, there is, part for part, exactly the same relation as we have in man's skull.

Then we found in the roof of the human skull two pairs of bones besides the occipital—the frontals and the parietals. In the pike there are the same two pairs of bones, very differently shaped, very different in extension. The parietals (Fig. 31, *l*) are so small that they do not nearly touch the ali-sphenoids; the frontals (Fig. 31, *k*), on the other hand, are excessively large, extending a long way backwards, and meeting with the supra-occipital behind; so that, in this respect, although there is a correspondence in the number of parts at the top of the skull there is some difference in the relation and connexion. But we shall see, in examining the modifications of the cranium of the mammalian series, that there are no bones which vary more remarkably than these parietals and frontals in them; and you will recollect that these bones which vary so much are membrane bones, and not cartilage bones. The cartilage bones, on the other hand, are remarkably persistent in their relations, even with one another.

Thus far I think you must be struck with the manner in which it is possible, without any hypothesis or pre-conceived notions of any kind, taking merely the nerves and parts of the brain as landmarks, to identify these parts in animals so vastly removed from one another as man and the pike. But the resemblance goes much further than this. The front wall of the pike's skull is to a certain extent closed by the olfactory capsules (Fig. 30, *q*), and above these olfactory capsules there are nasal bones (Figs. 30, *q*, 31, *d*), as in man. Upon the under part of the cartilaginous septum there is developed a vomer—developed from perichondrium, just as man's vomer is, and occupying the same position (Figs. 29, *c*, 30, *d*). And if we pass from the olfactory capsules to the otic capsules, which contain the parts of the organ of hearing, we shall find that the correspondence becomes more remarkable still. Taking the same order in the description of the pike's skull as in man's: as we found in man's skull, after describing these lateral arches, we had a great vacuity left filled up by temporal bone, so in the pike's skull, after this description, we have an equally great vacuity left, but that is filled up by the organ of hearing, surrounded by certain definite ossifications. It is a remarkable circumstance that the organ of hearing becomes larger, in proportion to the size of the skull, the more you descend in the series, so that in the fish the internal ear is an exceedingly large structure, very easily to be examined. It consists of the same fundamental elements as does that in man. There is in front an anterior vertical semicircular canal; there is behind a posterior vertical semicircular canal; the anterior and posterior are joined together in the ordinary way, and become connected with the vestibule. Then, upon the outer side there is a horizontal canal—that is to say, they are identically the same parts as in man. Then, connected with the lower part of the vestibule there is a second sac, which I very much incline to believe, with Rathke, represents the cochlea in man. However that may be, the other correspondence which I spoke of is quite complete. That organ is placed behind the ali-sphenoids (Fig. 30, *h*), in front of the ex-occipitals (Fig. 30, *f*), and below the parietals (Fig. 30, *l*)—that is, it occupies exactly the same position as the whole temporal mass has upon the sides of the skull in man.

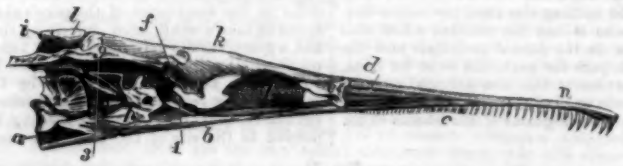
FIG. 32.

Diagram of periotic bones of pike. *a*, Prootic. *b*, Opisthotic. *e*, Epiotic. *d*, Anterior semicircular canal. *c*, Posterior ditto. *f*, External ditto. *g*, Vestibule. *k*, Rudiment of cochlea. *l*, Trigeminal nerve, or fifth. *h*, Vagus nerve, or eighth.

Now, what are the bones developed upon it? In front there is a large bone (Fig. 32, *a*). Suppose you are looking at that

through the vestibule; suppose this (Fig. 32) to be the internal ear on the right side; then there is a large bone (*a*), which is developed, you will see, in front of the anterior vertical semicircular canal (Fig. 32, *d*). That large bone has an aperture which allows the passage of the portio dura (below *a*); it has a deep notch which eventually becomes a hole (the notch is placed between it and the ali-sphenoid at first), and that hole gives exit to the third division of the fifth nerve (Fig. 32, *i*). So that this bone (Fig. 33, *b*), in its relations to the

FIG. 33.




Side view of pike's skull. *a*, Basi-occipital. *b*, Basi-temporal. *c*, Vomer. *d*, Nasal. *e*, Pre-frontal. *f*, Post-frontal. *g*, Squamosal. *h*, Prootic, with passage for fifth nerve in front. *i*, Epiotic. *k*, Frontal. *l*, Parietal. *n*, Superficial ethmoidal ossifications. *q*, Pre-sphenoidal plate. 1, Passage for optic nerve. 2, Ex-occipital, with passage for eighth nerve. 3. Posterior margin of prootic.

organ of hearing and to the third division of the fifth nerve, corresponds with the anterior division of the petrosal in man, which we called the prootic. The lower part of the posterior vertical semicircular canal (Fig. 32, *c*) is included in a like mass of bone, which in the adult pike is completely anchylosed together with the ex occipital; but the eighth pair passes out, as I stated, through the hole, and I have little doubt, if I had a pike young enough, we should find that this commenced as a separate ossification; but it is not of very great moment. At any rate, there is a mass of bone (Fig. 32, *b*) which does correspond exactly in position and relation with the opisthotic bone, except that, there being no fenestra rotunda in fish, of course it does not include it. Then there is a little triangular bone which appears upon the outer surface of the skull of the fish, forming with its fellow the two inner of the five prominences placed upon the hinder part of the skull of the fish (Fig. 31, *i*, and Fig. 32, *c*). If you examine the relations of these little triangular bones, not only in the pike, but in all osseous fishes whatsoever—at any rate, all I have examined, and I have examined a great many with reference to the point—you will find that they cover and include the upper part of the posterior vertical semicircular canal. Now, you will recollect what were the relations of the ossification which we called the epiotic in the human fœtus—that it was developed exactly in that position, and also served to include the upper part of the posterior vertical semicircular canal. So that the anterior bone (Fig. 32, *a*) and the upper (Fig. 32, *c*) are, without doubt, exact homologues, and correspondent bones with those ossifications which we called the prootic and the epiotic in man; and the bony mass (Fig. 32, *b*), though it is not a distinct bone in the adult, corresponds to the opisthotic ossification. Thus, when we fill in the side walls of the skull, we fill it in with three bones which correspond exactly with those which in the human fœtus fill in the cartilaginous space left between the ali-sphenoid and the ex-occipital. In other words, leaving mere details of form aside, the relations of the bones to all the important parts are exactly the same, and can be defined in the same terms, in the pike as in the human skull.

Then we found that, covering over the outer part of the auditory apparatus, the upper part of that in the human fœtus, there was developed the squamosal, which was a perichondrial bone developed from the outer side of the cranial capsule. In the fish (Figs. 28, 29, 31, and 33, *g*) there is a similar bone developed—not, however, as it would seem, altogether from membrane; but there is a bone which is placed here, which has upon the inner and hinder side the epiotic, which has below and in front the prootic, and which has below and behind it the opisthotic; that is to say, it has exactly the same relations as the squamosal bone, and for that reason one would give it the same name.

Therefore, Sir, you see that by confining oneself to this strict mode of comparison, none of the facts, I believe, are impeachable. If we are agreed to take the relations of the parts of the skull to the brain and to the internal organs as the measure of their exact nature, then we are able to identify, piece for piece and part for part, the great majority of the bones in this pike's skull with the majority of the bones in this human skull. There are some, however, which are not at once identifiable in the pike. In the first place, there is the long basilar bone (Figs. 29, *b*, 30, *c*), of which I spoke just now, and purposely put aside, commonly identified with the basi-sphenoid. There is another reason why it can have no relation to the basi-sphenoid, because it is developed from membrane, and not from cartilage. In all fishes it is developed from perichondrium; whereas we have found in man, and we shall find in all the vertebrata, that wherever there is the true basi-sphenoid de veloped, it is developed from cartilage. I believe the greatest light thrown by any person upon the precise nature of this bone, long a great puzzle to comparative anatomists, is that which has come from my friend Mr. Parker, so well known for his excellent work on the Balæniceps. He shows that in bird the bone is developed from two osseous centres, independent of the proper basi-sphenoid, and he proposes the name of basi-temporal—a name very appropriate in relation to birds, and I have little doubt that he is right in identifying this long bon e in the fish with that arising from these two separate ossifications in the bird.

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# A Course of Lectures

ON CERTAIN DISORDERS OF

# THE BRAIN & NERVOUS SYSTEM,

WITH SPECIAL REFERENCE TO THE

## CHANGES IN OPINION AND PRACTICE WHICH RESULT FROM RECENT RESEARCHES IN PHYSIOLOGY AND PATHOLOGY,

*Delivered at the Royal College of Physicians,*

BY CHARLES BLAND RADCLIFFE, M.D.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, PHYSICIAN TO WESTMINSTER HOSPITAL, ETC.

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## LECTURE IV.—PART II.

### IV. ON THE CONCLUSIONS RESPECTING MUSCULAR MOTION WHICH APPEAR TO ARISE OUT OF THE PREMISES.

48. ONE CONCLUSION WHICH APPEARS TO ARISE OUT OF THE PREMISES IS:—THAT LIVING MUSCLE, WHEN LEFT TO ITSELF, IS KEPT IN A STATE OF RELAXATION BY THE ACTION OF THE NATURAL ELECTRICITY OF THE MUSCLE.

49. ANOTHER CONCLUSION WHICH APPEARS TO ARISE OUT OF THE PREMISES IS:—THAT MUSCLE PASSES OUT OF THE STATE OF RELAXATION INTO THAT OF CONTRACTION WHEN THE ATTRACTIVE FORCE WHICH IS INHERENT IN THE PHYSICAL CONSTITUTION OF THE MUSCULAR MOLECULES IS NO LONGER ANTAGONIZED BY THE ACTION OF THE NATURAL ELECTRICITY OF THE MUSCLE.

50. A THIRD CONCLUSION WHICH APPEARS TO ARISE OUT OF THE PREMISES IS:—THAT THE NATURAL ELECTRICITY WHICH ANTAGONIZES CONTRACTION IS EXTINGUISHED FOR THE MOMENT BY THE INSTANTANEOUS ELECTRICAL CURRENTS OF HIGH TENSION (ANALOGOUS TO THE DISCHARGES OF THE TORPEDO) WHICH ARE DEVELOPED WHEN MUSCLE OR MOTOR NERVE PASSES FROM THE STATE OF INACTION INTO THAT OF ACTION, AND THAT ORDINARY MUSCULAR CONTRACTION IS BROUGHT ABOUT IN THIS WAY.

51. A FOURTH CONCLUSION WHICH APPEARS TO ARISE OUT OF THE PREMISES IS:—THAT THE NATURAL ELECTRICITY WHICH ANTAGONIZES CONTRACTION IS EXTINGUISHED PERMANENTLY AT A CERTAIN TIME AFTER DEATH, AND THAT THE PERMANENT CONTRACTION OF RIGOR MORTIS IS BROUGHT ABOUT IN THIS WAY.

The "correlation of the physical forces" has suggested the notion that the natural electricity of the muscular and nervous systems may be converted into contractile force, and that muscular contraction may be brought about by the operation of this force; but this notion, as it seems to me, is not in harmony with the history of rigor mortis. For what is this history but this:—(1) that the natural electricity of the body disappears more or less slowly after death; (2) that rigor mortis is deferred until every trace of this electricity has disappeared; and (3) that, once established, the rigidity remains, without any interval of relaxation, until the muscles break up in the ruin of putrefaction? The case is *not* one in which the natural electricity fails suddenly and as suddenly gives place to contraction, and in which therefore it might be supposed that the electricity had been transformed into contractile force; but it is one in which, after failing gradually, the electricity has become reduced to so very insignificant an amount before the time for rigor mortis has arrived, as to make it difficult to know where to find the electricity which is supposed to be transformed into contractile force when the contractile force is wanted. The case, too, is one in which the very duration of the contraction would seem to be sufficient to show, in no indistinct manner, that the contraction is connected with the physical integrity of the muscular fibres, and with nothing else; for the simple fact is, that rigor mortis, once established, is only put an end to by the putrefactive decomposition of the contracted fibres. In a word, the history of rigor mortis is as intelligible upon the view which refers this form of contraction to the attractive force which is inherent in the physical constitution of the muscular molecules, as it is unintelligible upon the view which would connect the contraction with a transitory contractile force arising in the transformation of natural electricity. And if this be so with respect to rigor mortis, it is fair to assume that it may be so also with respect to ordinary muscular contraction; for the explanation which will apply to rigor mortis as well as to ordinary muscular contraction is surely to be preferred to that explanation which at best can only apply to ordinary muscular contraction.

52. *This theory of muscular motion is not contradicted by any peculiarity in the law of muscular contraction which does not admit of a physical explanation.*

No difficulty can be raised upon this point, for it is now generally admitted that the law of muscular contraction differs in no respect from the law of contraction in india-rubber and other elastic bodies.

53. *This theory of muscular motion is not contradicted by the fact that dead muscle is less strong and tough than living muscle, for this phenomenon admits of a physical explanation.*

After death it is easy to believe that muscular fibres may be weakened by the solvent action of the "juice of flesh," or by the commencing resolution of the muscular molecules into their constituent elements. After death, also, it is easy to believe that the strain upon the muscular fibres may fail to produce that state of contraction in the fibres which it would not fail to produce during life, and that for this reason dead muscle may be less strong and tough than living muscle; for it is to be supposed that the molecular attraction in the muscular fibres will oppose a greater resistance to this strain when the molecules approximate, as they do in the state of contraction, than that which is opposed when the molecules are apart, as they are in the state of relaxation. But be the explanation what it may, enough has been said to make it altogether gratuitous to suppose that dead muscle is less tough and strong than living muscle because death has destroyed a vital property of contractility.

54. *This theory of muscular motion is not contradicted by the fact that muscle cannot act without intervals of rest, for the phenomenon admits of a physical explanation.*

That muscular action is dependent upon certain physical conditions which may become deranged by the continuance of the action, and which may not be restored until nutrition has had time to do its work, is sufficiently manifest; and surely this view is as intelligible as that which proposes to account for the phenomena by supposing that a vital property of irritability is after a time tired out by over-work, and that this property requires to be revivified by rest before it can begin work again.

55. *This theory of muscular motion is not contradicted by the fact that muscle may alternately contract and relax without change of volume and without loss of time, for these changes have their strict parallels among purely physical phenomena.*

Mr. Joule, of Manchester, has shown that these changes in muscular fibres are strictly parallel to the changes which are produced in bars of iron by the alternate impartation and abstraction of magnetism; and, therefore, there is no reason to suppose, as some have done, that the former changes do not admit of a physical explanation. Moreover, it has been seen already (¶¶ 8 and 9) that the changes in form which the muscle undergoes in contracting and relaxing may be nothing but the natural consequence of the departure and return of the natural electricity of the muscular fibres.

56. *This theory of muscular motion is not contradicted by any fact which renders it necessary to suppose that an increased disposition to muscular contraction is connected with a state of exalted functional activity in a vital property of irritability in muscle or nerve.*

Some recent experiments by Dr. Harley appear to furnish good ground for doubting the current belief that strychnia and brucia favour muscular contraction by augmenting the functional activity of a vital property of irritability in muscle or nerve. In one of these experiments (one must serve as an example of the rest) the hearts of two frogs are immersed, the one in simple water, the other in a weak solution of strychnia, and the result is that the former heart goes on beating regularly for some time after the latter heart has passed into the state of true rigor mortis. The result, that is to say, is one which shows very plainly that the action of the poison is, not to exalt, but to extinguish the vital properties of the muscle and nerves, and so to explode the notion that the spasms of strychnia poisoning are to be looked upon as the sign of exalted functional activity in a vital property of irritability in muscle and nerve. And if strychnia and brucia have not the power of augmenting the functional activity of a vital property of irritability, what other agents are there which can be supposed to have this power?

57. *On the other hand, it would seem that this theory of muscular motion derives no small amount of confirmation from the fact that it provides a* PHYSICAL *explanation for the state of muscular relaxation no less than for the state of muscular contraction, and brings ordinary muscular contraction and rigor mortis under the dominion of one and the same law.*

The current theory of muscular motion makes no especial account of the state of muscular relaxation, and it is obliged to invent two different vital properties of contractility—irritability and tonicity—to explain ordinary muscular contraction and rigor mortis. Hence it fails in comprehensiveness when compared with the theory under consideration. And for the rest I will only say this, that a theory which is based upon the known laws of physics may have some claim to be regarded as a satisfactory explanation; but that a theory which assumes as its fundamental principle that the mystery of life is a sufficient explanation for every difficulty, can have no such claim.

## § II.—ON RHYTHMICAL MUSCULAR MOTION.

Want of time obliges me to speak only of rhythmical muscular motion as it is exemplified in the beating of the heart, in the peristaltic movements of the alimentary canal, and in the respiratory movements of the chest. Want of time also obliges me to reduce even this part of the argument to its principal heads, and to refrain from explanatory remarks everywhere. I omit much: at the same time, so far as I know, I omit nothing which does not readily harmonize with the facts which have to be cited, and with the conclusions which have to be drawn.

### (1) ON THE RHYTHMICAL MOVEMENTS OF THE HEART.

58. *When the ventricles pass out of the state of systole into that of diastole their muscular walls receive a fresh supply of arterial blood through the coronary arteries: when the ventricles return from the state of diastole into that of systole the blood which was injected into their walls at the previous systole has had time to lose its arterial properties; and thus the blood would seem to play the same part in the movements of the ventricles as that which it plays in ordinary muscular motion, for it has been seen* (¶¶ 35 & 36) *that the state of relaxation (which is the natural state of living muscle when left to itself) is not disturbed by contraction when arterial blood is supplied to the arterial system, and that the state of relaxation is disturbed in this manner when arterial blood is not supplied, or (what is the same thing) when venous blood is supplied in place of arterial.*

59. *When the ventricles pass out of the state of systole into that of diastole their muscular coats would seem to receive a due supply of "nervous influence" from the "rhythmic nervous centres of the*

*heart,"* for at this time these nervous centres must be roused into a state of full functional activity by the arterial blood which has just been propelled into these coats through the coronary vessels by the ventricular systole; when the ventricles return from the state of diastole into that of systole their muscular walls would seem to be deprived of the "nervous influence" which they had been receiving from the "rhythmic nervous centres" during the diastole, for at the time of the new systole the blood which had been propelled into the coats of the heart at the previous systole has had time to lose those arterial properties which are necessary to keep these nervous centres in a state of functional activity; and thus "nervous influence" would seem to play the same part in the movements of the ventricles which it plays in ordinary muscular action, for it has been seen* (¶ 41) *that the state of muscular relaxation is not disturbed by contraction so long as the muscles receive a due supply of "nervous influence," and that this state of relaxation is disturbed in this manner at the moment when the supply of "nervous influence" is interrupted.*

60. *When the auricles pass from the state of systole into that of diastole the main reasons would appear to be*—(1), *that the circulation through the heart is arrested for the moment, first of all, by the ventricles having taken in as much blood as they can take in at their diastole, and, afterwards, by the auriculo ventricular valves becoming closed at the ventricular systole; and* (2) *that, in consequence of the circulation being arrested in this manner, the auricles relax and "fill out" under the pressure of the stream of blood which is continually setting in from the valveless openings of the great veins: when the auricles return from the state of diastole into that of systole, one main reason would seem to be, that their walls fall in, in consequence of the blood being, as it were, suddenly sucked away from their cavities by the diastole of the ventricles*:—AND THUS THE EXPLANATION OF THE RHYTHM OF THE WHOLE HEART IS INCLUDED IN THE EXPLANATION OF THE RHYTHM OF THE VENTRICLES (¶ ¶ 58 & 59), FOR THE MOVEMENTS OF THE AURICLES RESOLVE THEMSELVES INTO SIMPLE CONSEQUENCES OF THE MOVEMENTS OF THE VENTRICLES.

61. *The fact that the heart beats more quickly when the medulla oblongata or pneumogastric nerves are acted upon by* FEEBLE *electric shocks may show, not an excited state of functional activity in the rhythmic nervous centres of the heart, but the very opposite; for it has been seen* (¶ 43) *that the disposition to muscular contraction is inversely related to the amount of "nervous influence" supplied to the muscles.*

62. *The fact that the heart pauses in the state of diastole when the medulla oblongata or pneumogastrics are acted upon by* STRONG *electric shocks, is readily explained by supposing that these shocks have paralysed the rhythmic nervous centres of the heart, and so left the muscular walls of this organ free to yield* (1) *to the action of their natural electricity (which action antagonizes contraction so long as it continues), and* (2) *to the pressure of the stream of blood which is continually setting in from the valveless openings of the great veins.*

63. *The fact that the muscular coats of the ordinary vessels pass into a state of contraction when the vaso-motor nerves are exposed to the action of* FEEBLE *electric shocks is in strict harmony with, and leads to the same conclusion as, the fact that the heart exhibits an increased disposition to contraction under analogous circumstances* (¶ 61).

64. *The fact that the muscular coats of the ordinary vessels pass into a state of relaxation when the vaso-motor nerves are exposed to the action of* STRONG *electric shocks† would also seem to be in strict harmony with, and to lead to the same conclusion as, the fact that the heart pauses in the state of diastole under the same circumstances* (¶ 62).

65. *The fact that the muscular coats of the ordinary vessels pass into a state of relaxation when their special nerves are divided is also in harmony with the fact last mentioned* (¶ 64), *for it can be of no essential moment whether these coats be paralysed by the action of electricity upon their nerves or by dividing these nerves.*

66. *The fact that a heart, or a fragment of a heart, may go on beating in the air after it is out of the body, need lead to no different conclusion respecting the action of the heart; for in this case the explanation may be either*—(1), *that air which is not changed by the respiration of the tissues may play the part of arterial blood in its action upon these tissues, and that air which is changed by this process may play the part of venous blood; or else* (2) *that the air may act as it would seem to act in the production of the respiratory movements of the chest—an action to which further reference will have to be made presently.*

* Mr. Paget has shown that certain nervous centres which were first detected within the substance of the heart by MM. Bidder and Rosenberger have an all-important part to play in the rhythmical movements of the heart.

† I have satisfied myself by repeated experiments as to the reality of this fact.

67. *Nor do the facts which illustrate the action of the blood upon the muscular coats of the ordinary vessels reflect any doubt upon the conclusions which may be drawn respecting the action of the heart, for these facts would seem to show that these coats do* NOT *contract when they are acted upon by arterial blood, and that they do contract when they are directly or indirectly deprived of this action.*

### (2) ON THE PERISTALTIC MOVEMENTS OF THE ALIMENTARY CANAL.

68. *The fact that these peristaltic movements are increased when the admission of blood to the coats of the alimentary canal is prevented by pressing upon the abdominal aorta, and diminished when the blood is allowed to return to these coats by removing this pressure, tallies well with the conclusions which have been drawn respecting the modus operandi of blood in muscular motion; and so, also, does the companion fact that these peristaltic movements are increased when the venous blood is prevented from escaping from the coats of the alimentary canal by pressing upon the vena porta, and diminished when the removal of this pressure allows the vessels of these parts at once to rid themselves of black blood and to receive a new supply of red blood.*

69. *The fact that the peristaltic movements of the alimentary canal are quickened by passing* WEAK *electric shocks through the spinal cord or grand sympathetic is in strict harmony with, and leads to the same conclusion as, the fact that the heart and the ordinary vessels exhibit an increased disposition to contraction under analogous circumstances* (¶ ¶ 61 & 63).

70. *The fact that the peristaltic movements are arrested in the state which is opposed to contraction by passing* STRONG *electric shocks through the spinal cord or grand sympathetic is in strict harmony with, and leads to the same conclusion as, the fact that the heart and the ordinary vessels pass into a state of relaxation under analogous circumstances* (¶ ¶ 62 & 64).

### (3) ON THE RESPIRATORY MOVEMENTS OF THE CHEST.

71. *When the thoracic muscles pass out of the state of relaxation in which they are during expiration into the state of contraction in which they are during inspiration what appears to happen is this—that the oxygen of the inspired air has made an "impression" upon the pneumogastric and other afferent nerves, and that this "impression" has brought about contraction through the instrumentality of the natural electricity of the nervous and muscular system, in the way already pointed out* (¶ 47): *when the inspiratory contractions come to an end what appears to happen is this—that the disappearance of the oxygen of the air in the process of respiration has removed the cause of the "impression" which led to the contractions, and so left the muscles free to return to their natural state of relaxation.*

— In these three forms of rhythmical muscular motion, therefore, there is nothing to contradict, and much to confirm, the previous conclusions respecting ordinary muscular motion. In a word, there is every reason to believe that the theory which is applicable to ordinary muscular motion is also applicable to rhythmical muscular motion, and that, without any fresh assumption, it will even give an insight into the mystery of the rhythm itself.

## PART II.

## ON THE PHYSIOLOGY OF SENSATION.

The little I have to say upon this subject may be said without much difficulty even at this advanced period of the hour allotted to the lecture, for I have only to give an account of two facts which seem to be of crucial importance when taken in connexion with what has gone before, and to draw the conclusions which seem to be inevitable under the circumstances.

72. *In the case of a sentient nerve, as in the case of a motor nerve, the nerve loses electricity when it passes from the state of inaction into that of action.*

The demonstration of this fact is supplied by M. DuBois-Reymond in an experiment in which a rheoscopic limb, not deprived of its skin, is arranged as in the accompanying figure,—the limb, that is, in a V-shaped tube, and a portion of the nerve within the circuit of a galvanometer. Having made these arrangements, and having waited until the needle has taken up the position into which it diverges under the action of the current proceeding from the nerve into the coil of the galvanometer, the tube is filled half-full of water at a temperature just below the boiling point. This is the experiment: the result is, that the needle recedes towards zero as soon as the skin of the limb is acted upon by the hot water. The needle, that is to say, recedes towards zero under circumstances which would give rise to keen sensation if the sentient nerves of the skin were in connexion with the sensorium: and thus in the

case of a sentient nerve, as in the case of a motor nerve, it is to be supposed that the nerve loses electricity when it passes rom the state of inaction into that of action.

FIG. 20.

73. *In an electrical point of view the action of a sentient nerve which produces sensation is in every respect the same as the action of a motor nerve which produces muscular contraction.*

If (M. Matteucci supplies the experiment) the sciatic nerve of a rabbit be divided in the ham, and the end which is in connexion with the brain be dissected out and laid across the poles of a galvanic cell, the animal screams with pain and strains with convulsive movements when the circuit is closed *and* opened, or when the circuit is closed *or* opened. Before the time when the portion of nerve which is included in the circuit is paralysed by the current (¶ 25), the screams and convulsions happen equally at the closing and opening of the circuit, and it is immaterial whether the positive or the negative pole be in the position next to the brain. After the time when the portion of nerve which is included in the circuit is paralysed by the current (¶ 26), the screams and convulsions are present at the closing of the circuit, and absent at the opening, when, as in the following diagram, the negative pole

FIG. 21.

is in the position next to the brain; and absent at the closing of the circuit, and present at the opening, when, as in the next diagram, the positive pole is in the position next the brain.

FIG. 22.

Pain and convulsion, that is to say, come together and go together. In a word, there is reason to believe that the electrical changes which a sentient nerve experiences in the production of sensation are the exact equivalents of the electrical changes which a motor nerve experiences in the production of muscular contraction.

74. *There is reason to believe that the same conclusions are necessary with respect to the action of a sentient nerve in sensation as those which are necessary with respect to the action of a motor nerve in the production of muscular contraction.*

Taking the two facts which have been mentioned in the two preceding paragraphs, and placing them side by side with the facts which have been marshalled previously, there would seem to be good reason to adopt this belief. There would seem to be reason to believe, that is to say, that the action of a sentient nerve may have to be explained, *not* by assuming that a vital property of sensibility has been stimulated into a state of functional activity, but by supposing—(1) that the "impression" which issues in sensation involves an equivalent expenditure of natural electricity in the sentient nerve; (2) that this expenditure gives rise to the development in and near the nerve of instantaneous electrical currents of high tension, analogous to the discharges of the torpedo; and (3) that the instantaneous currents or discharges which are developed in the neighbourhood of that part of the nerve which lies within the sensorium will give rise to sensation if any sensorial ganglionic cells happen to come within their range of action.

Judging from purely physiological evidence, then, physiologists may safely follow Humboldt's example in endorsing the words of Brandt, already quoted,—"la physiologie doit à Galvani et à Harvey ses deux bases principales;" and, with Galvani's nephew, Aldini, pathologists may fairly hope that animal electricity "may one day throw great light on the progress of medicine, and be productive of considerable benefit to the human race."

## CLINICAL REMARKS
ON AN
## ANOMALOUS INTUSSUSCEPTION OF THE INTESTINES.

BY WILLIAM BRINTON, M.D.,
PHYSICIAN TO ST. THOMAS'S HOSPITAL.

WE notice to-day a malady far from common, as illustrated by an example the symptoms and course of which render it still more exceptional. Intussusception of the intestinal canal, a disease which presumably causes about one in every six hundred deaths of our population, is, in a majority of instances, one of the most acute and fatal lesions to which the human frame is liable; causing obstruction of the bowels, and either killing in a few days of almost uninterrupted suffering, or permitting a dangerous and uncertain recovery after the removal by ulceration and sloughing of the intussuscepted parts. But our patient (No. 26, Edward's ward) probably lived four months and a half from the occurrence of the lesion, during the whole course of which the bowels could never be said to be obstructed, while it could be affirmed that he at times experienced little or no suffering for many days together. Finally, it is very doubtful whether the lesion was the chief cause of his death; and certain that its constitutional effects were greatly increased by disease, probably independent of it, in a distant organ.

I am sure that, on a little consideration, you will acquit me of bringing forward the case as a rarity, or of unduly appealing to your curiosity by favouring what one may term the melodramatic aspect of clinical Physic. Nay, more: it is not even to suggest a vague and unreflecting caution, which without care would assuredly degenerate into mere timidity or uncertainty of diagnosis, that I call your attention to so obscure and exceptional a case. It is to seize a valuable opportunity for instructing ourselves in the pathology of intussusception; to sit at the feet of Nature, and learn what are the essential features, and what (to speak logically) the mere separable accidents of the lesion; to trace out, if we can, what caused this case to be so exceptional; and, above all, to study the effects of its rational treatment,—that I now bespeak your attention.

The patient, a man aged thirty-eight, of intemperate habits, and, as a porter, accustomed to great muscular exertion, as well as to fasting for many hours together, noticed, some four months before his admission, a great decrease in his appetite. One month thereafter, he was seized with a severe pinching pain in the navel, which "doubled him up," and brought on a vomiting of greenish matter. From that time forth, he was subject to severe but remittent gnawing pain, which became continuous before his admission. There was also occasional vomiting, usually of food. His bowels became irregular: at times purged; at times freely open; rarely somewhat constipated; but always amenable to purgatives. His complexion acquired a sallower hue, he emaciated rapidly, lost strength, and finally was admitted an in-patient on the 15th of September last.

On examination, the belly was found to be somewhat distended, and very tender to pressure, especially in its lower half, where the movements of breathing were greatly diminished. A swelling like a cylinder bent into a crescent, with the concavity upwards, passed across the hypogastric region, from the situation of the junction of the ascending colon with the cæcum, where it was most distinct, to a point somewhat below this level on the opposite side, where its gradually decreasing distinctness altogether withdrew it from detection. The right half of this swelling was evidently the seat of an active writhing peristalsis, during which a corresponding coil of bowel rose against the wall of the belly in an exceedingly painful spasm,

which, after lasting three or four minutes, subsided into what was rather a remission than an intermission of both pain and peristalsis. Above and below this swelling a little fluid appeared to occupy the peritoneal cavity.

In respect of other symptoms and other organs, he complained of great weakness, and of frequent vomiting, often returning the whole of a meal shortly after its ingestion. His pulse, firm almost to jerking, beat 84 times, and he breathed about 20 times, in a minute. His heart was weak, but otherwise healthy; his liver and spleen were of natural size. The thoracic character of his breathing seemed to exaggerate (as such a respiration usually does) the auscultatory sounds of the lungs. But apart from this *quasi* "puerile" breathing nothing abnormal could be detected in the upper lobes of the lungs; and the irregularity, as well as harshness, of the respiratory sounds audible below was quite insufficient to justify any strong suspicion of mischief in lungs which played to and fro so actively during breathing.

Then came the question as to the nature of the malady. There could be no doubt about the presence of peritonitis; and just as little about the presence of some lesion at or near the end of the cæcum, causing a partial obstruction of this end of the tube. But what was this lesion?

It is generally easy to be wise after the event; and I dare say that some of you, looking at this diagram, a copy of the

FIG. 1.

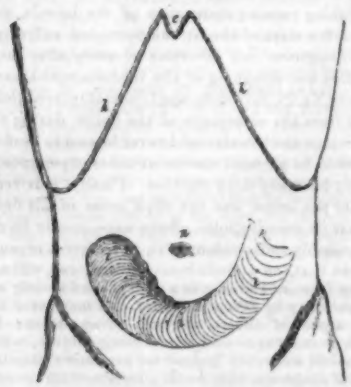


Diagram to illustrate the physical examination of the belly in this case of intussusception.

*c*, Ensiform bone. *b*, *b*, Edges of hypochondria. *a*, Navel. *d*, *d*, *d*, Crescentic segment of distended and contracting intestine, felt through the wall of the belly, and with increasing distinctness from the left towards the right side, the seat of the intussusception.

outline then marked out on the abdomen, will think that—as I was not only struck by the close resemblance of this crescentic swelling to that produced by the commonest or ileo-cæcal intussusception in its earlier stage, but was further impressed by the peculiar leathery feel and gradual enlargement of the cæcal end of this swelling, prior to its equally characteristic and abrupt termination—I ought at once to have adopted this diagnosis, to the exclusion of every other.

Perhaps I ought. But I did not. That such a lesion had probably lasted nearly four months, with little vomiting, and much purging, raised a strong presumption against its being a mere intussusception. And while the peritonitis present suggested some disease of which ulceration—one of the commonest provocatives of peritonitis—was a frequent incident, the partial obstruction, and indeed the whole condition of the bowel behind it, seemed equally referable to an adventitious deposit; which, by impeding the transit of the intestinal contents, might thus explain the obstruction and the peritonitis; and, by its reaction on the constitution, the marked and unmistakable cachexia of the patient. Nay more, it was quite possible that some such deposit might have caused a downright (though limited) intussusception in front of that hypertrophied and dilated segment of ileum which in any case probably formed all but the right extremity of the tumour.

Practically, then, while acknowledging the possibility of mere intussusception, and the probability of some degree of this lesion, it was the nature and import of the supposed intestinal deposit which formed the immediate object of my inquiry. And here I could only end by an alternative. Was this supposed deposit tubercular on the one hand, or cancerous on the other?

Putting such a question as a general one, I am sure some of you could answer it neatly enough. There is the age favoured by cancer, its greater painfulness and swelling, its greater liability to hæmorrhage, its cachexia, its rarer involvement of the lungs. All these distinctions, on paper, would seem sufficient to enable anyone to frame an opinion.

But now let us turn to the special case. First, a moment's scrutiny shows that our patient's age goes for nothing; inasmuch as, relatively to the number of persons living at various ages, phthisis—the malady of which intestinal tuberculosis is a kind of irregular (or rather precocious) development—does not attain its maximum frequency until long after forty. It is true that more young people die of phthisis than old ones. But then there are more of them. Again, comparing the two maladies with each other as they affect the same organ, I think it may safely be alleged that at the age of our patient intestinal tuberculosis is far more common than intestinal cancer.

Then as to the other distinctions, granted that each counts for something, and that all, or even several, in combination would count for a good deal more, what are we to say when they are absent, or about equally divided? Here was no swelling discernible save such as seemed the effect, rather than the cause, of obstructive deposit; similarly, what pain was present seemed referable to inflammation and distension, rather than to the supposed primary mischief. Except from small polypoid growths, hæmorrhage is rarely provoked save by such cancers of the bowels as cause perceptible swelling or thickening of their coats; while it is common enough in the ulceration of tubercle. Cachexia is, indeed, very significant. But it takes a large experience, a minute observation, and, to speak candidly, a few of those valuable lessons taught us by our errors, to discriminate between the physiognomy of that profound prostration which even moderate abdominal lesions may produce, and that true cachexia which is so much more specific of cancer. And, lastly, as regards the lungs, on the one hand, it is quite wonderful how long and how successfully advanced tubercle of the intestine can retard, as well as mask, tubercle of the lungs; while, on the other hand, I am persuaded that the frequency of cancer of the lungs is, even now, somewhat underrated, just as the arrangement, progress, and results of this deposit at times allow it to be mistaken for tubercle in necropsies.

In point of fact, it was the patient's physiognomy, and especially his rapid emaciation beyond what (so far as could be judged) the history of his case accounted for, which favoured the view of his suffering from cancerous disease. The pulmonic signs were uncertain; and their drift, assuming them to signify a deposit in the lungs, equivocal. On the whole, the most plausible conjecture was that of a cancerous deposit, which we could not at all verify by palpation, and of secondary cancer of the lungs, which was scarcely more distinctly affirmed by auscultation.

As regards the far more important question of treatment, I shall not weary you by enumerating in detail the various measures we had to adopt. It is enough to point out the objects they had, and how they were modified to fulfil them. To allay pain, to check vomiting, to mitigate the agony of straining peristalsis, and yet, if possible, to permit that transit of the obstructed bowel by its contents without which any temporary mitigation of suffering would assuredly be dearly bought by greater agonies from subsequent constipation—these were the purposes we had to aim at.

As regards food, the vomiting being essentially sympathetic, and certainly not due to any gastric lesion, our reasonable expectations were soon fulfilled. Taking his food in small and frequent doses, the patient soon became able to retain a fair quantity of strong nourishment—at first chiefly of a liquid or semi-liquid consistence, but soon exchanged for fish, eggs, and mutton-chops,—as well as a moderate amount of diluted wine, brandy, or rum-and-milk. And here let me say that, even in the worst forms of pain depending on organic lesion, there is good reason to regard a proportion of the suffering as being essentially neuralgic, and (a practical corollary to this proposition) as being susceptible of relief by the food and stimulants which impart or sustain nervous energy. There are plenty of facts which suggest that lesions of nerve not necessarily painful, may become so from causes originally by no means local. Thus I believe that there are hundreds of people walking about London this minute, the diseased nerves of whose carious teeth would be speedily roused into severe neuralgia by two or three nights of sleepless watching and anxiety, or by two or three days of insufficient nourishment, or of violent

and exhausting exertion of mind or body. And, conversely, I am sure that a generous diet will often relieve (in plain English, lessen or suspend) the agony arising from sheer involvement of nerves in a cancerous deposit.

The drugs first prescribed were opium and quinine, in the form of a pill, so as to ensure a slower and more continuous action than would be likely, were they given in solution. Finding the pain but moderately diminished by these remedies and by warm fomentations, while the scanty effusion into the peritoneum seemed somewhat to increase, I ordered a blister to the abdomen, which at once procured a further decrease of the pain. Not satisfied yet, I prescribed the daily application of olive oil to the whole surface of the belly—a remedy which I often use in intestinal diseases, apparently with the good effect of allaying spasm of the abdominal muscles, and thus of soothing pain. A little later, the dose of opium was increased from one grain of the extract (a much more uniform and efficient preparation than the crude drug) to two grains every six hours. Altogether, he expressed himself as much relieved.

By-and-by, however, there occurred a new difficulty. The bowels, hitherto acting once or twice daily, became confined; and at the same time, the painful and spasmodic peristalsis of the distended segment was greatly aggravated, while the increased distension of this segment brought its outline into increased distinctness. These sufferings seemed little (if at all) relieved by the liquid opiates occasionally prescribed him to procure sleep. To judge by his condition during the short intervals of the spasms, he seemed to be taking quite as much opium as, in the existing state of his nutrition, was advisable; especially since the sedative appeared to be at least indirectly or partially responsible for that evident accumulation of the intestinal contents which caused the spasm. To give purgatives could not be thought of: indeed, whether we consider the peritonitis or the obstruction, such a procedure would have been—at least this is my deliberate opinion—the grossest *malapraxis*. From the site of the obstruction, distensive enemata threatened to be scarcely less objectionable, as well as useless. What then was left us? or how was the patient to be relieved?

There are two or three sedatives the physiological effects of which appear to be specially distinguished from those of opium by their influence on the muscular tissues, which they cause to relax, instead of to contract, as does opium. Tobacco, belladonna, and, in a lesser degree, henbane and hemlock, seem to have this effect. Tobacco is practically so unmanageable, and therefore dangerous, a narcotic; the products of its combustion so diverse from its original constituents, the perturbing influence of its habitual use on its proper dose so great, its strength so uncertain, and (to be candid) our knowledge of its medicinal use for this purpose so slender, that I, for one, rarely prescribe it; and am content to read my justification in many of the cases in which its dangerous action has been recorded. Belladonna we know more about; our patients are unused to it; the extract is a good and uniform preparation. And you will recollect that, in some of its more striking effects on the muscular system, it seems to claim a position almost antagonistic to opium; which (for example) contracts the unstriped muscle of the pupil, and tetanizes the voluntary or striped muscles of some animals; while belladonna dilates the pupil, and causes so much relaxation of the voluntary muscles, that it has been proposed (and, if I recollect aright, favourably spoken of) as a remedy against tetanus, and against poisoning by strychnia.

Hence therapeutically there rise the questions—(1) If we give opium and belladonna in combination, will they exactly neutralize each other, so as to have no valid effect save that due to a preponderance of either drug—due to the casual dose of each, or to the idiosyncrasy of the patient? Or (2) is the special effect of each on the muscular system so far independent of any more or less common sedative effect on the nervous system, as that their combination in suitable proportions will assuage pain, leaving the muscles unaffected, or even permitting us to correct all the bad effects in this respect of the stronger and better sedative (opium), leaving its admirable qualities as an anodyne and stimulant untouched?

Now I think there are good physiological reasons *against* the presumption of opium and belladonna exactly neutralizing each other, in whatever proportions they may be combined; and *for* the possibility of their easy adjustment, so that the sedative effects of the opium may be combined with the relaxing effects of the belladonna. For, in the first place, there is nothing which suggests any exact antagonism, but much which suggests a degree of resemblance, in their sedative influence on the nervous system. And, in the second place, the influence of opium on the various muscular tissues is far less constant, important, and energetic than its sedative powers, both in Man and in the various classes of animals; while the converse influence of belladonna on the same structures is contrasted with it in all these respects. Nothing short of what we may term an approach towards poisoning by opium generally affects the pupil; while the casual absorption of belladonna from a plaster,—say on the hip or leg—will often dilate the pupil almost to blindness with scarcely a single symptom of any other effect, nervous or otherwise. And it may be fairly pointed out, that nothing short of an exactly equal proportion of the above muscular and nervous effects, in the action of both drugs, would justify the assumption of their exactly neutralizing each other.

However this may be, it is to experience alone that we can look for the decision of these and most other questions concerning the therapeutical operancy of drugs. Their known physiological effects may suggest their application, and even their dose; while the fact of their not having any physiological effects at all may well suggest caution, if not reluctance, in admitting that they have medicinal virtues. But apart from these laws, which scarcely apply to the remedies we are now considering, the best part of our knowledge of their use is strictly empirical.

As a matter of such experience, I have sometimes observed that the addition of a small (one-sixth to one third of a grain) dose of extract of belladonna to the ordinary (one to two grains) dose of extract of opium has seemed to obviate much of the inconvenient constipative effects of the latter remedy. And in the case we are now considering the combination appeared to be unusually beneficial. The patient had scarcely taken four doses of the medicine before the pain and spasm subsided, and he soon afterwards got rid of a tolerable quantity of pultaceous excrement; the first relief of this kind that he had experienced for four days.

From this time forth his local symptoms seemed quite under the control of treatment. He almost ceased to suffer any pain, expressing himself as comparatively easy, even in the rare attacks of griping disturbance which occasionally reminded him of his past agonies. The hitherto distended bowel, too, subsided so greatly, that it was only discernible by the narrower and leathery cylinder which corresponded with what had formerly been the right end of the crescentic swelling. His constitutional health, however, did not materially improve; and soon, in spite of his freedom from suffering, he began to sink, and died, terribly emaciated and exhausted, about three weeks after this change of symptoms, or six weeks after his admission.

The necropsy showed evidence of peritonitis of considerable standing, in the form of shreds, membranes, and short bands of lymph, with a scanty quantity of dirty greenish fluid. The intussusception (now before you) is the commonest form of this lesion, about six inches of the lowest end of the ileum having been pushed into the ascending colon, inverting the cæcum as it went. A little consideration of the specimen, aided by the accompanying diagram, will at once enable you to understand how such an intussusception is easily recognised, from the circumstance that the ileo-colic valve is always its lowest point; and how, going from without inwards, we have in succession a serous membrane, then two opposed mucous membranes, then two opposed serous membranes, and finally the mucous membrane of the ileum in the axis of the intussusception itself.

FIG. 2.

FIG. 2.—Diagram to illustrate the intussusception of a flexible tube, as seen when cut lengthwise.
*a*, Inner layer. *b*, Middle layer. *c*, Outer layer. *d*, Interval of two inner (mucous) surfaces. *e*, Interval of two outer (serous) surfaces.

Beyond very moderate swelling and infiltration, these various coats of the intussusception offered no approach to the intense inflammation, adhesion, ulceration, and sloughing, which such a lesion, especially of so long a standing, would generally exhibit. Dr. Montgomery informs me, however, that the epithelium of the inverted mucous membrane was the seat of a pigmentary deposit, occupying the interior of the cells without otherwise affecting their structure. Some of the mesenteric glands were inflamed and enlarged. Lastly, the lungs were

studded with minute masses of deposit, varying in size from a millet-seed to a small pea, occupying chiefly their lower lobes, and predominating in the right lung. The deposit consisted of unmistakable cancer, which, in the larger masses, was beginning to soften at the centre.

Summing up in a few words the total results of the case, we may fairly claim to have surmised during life all that was found after death. As to the peritonitis and the partial obstruction, which were the chief local elements of disease, we were not only quite right, but were able to found, on the diagnosis, a treatment that saved the poor patient three weeks of agony. As to the intussusception, its marked physical signs ought perhaps to have carried it more definitely into the diagnosis than its anomalous symptoms allowed it to do: it should have been regarded, that is, as highly probable, rather than very possible. In respect to the lungs, while they show that we were right in decidedly recognising the cancerous cachexia, they indicate that we so far missed a point of the case as that we could but suspect a deposit which looks as if its full recognition might have been effected. But so scanty and scattered a deposit, in such small masses, and nowhere very near the surface, would often be scarcely detectable by the most accomplished auscultator, especially where abdominal disease had reversed so many of those collateral conditions of breathing which practically aid us so much in the detection of early phthisis. At the same time, it is quite possible that the sedulous examination of the chest up to the very day of death might have advanced our knowledge of its state. But the promise of no such diagnostic details would induce me to weary a dying man, as life slowly ebbs out of him, by frequent and minute inquiries of this kind; or to do unto others as (sooner or later, when my turn comes) I should be very loth to be done by.

For the unusual masking of the symptoms of the intussusception I can offer but one explanation, which is simple, classical, and true. The old masters of our art have told us that one mortal disease often, as it were, conquers and suppresses another. And just as there is no disease more deadly than cancer, especially when seated in the nobler organs, so there is none so apt to play this tyrant's part. To be correct, indeed, we must notice that, in the case we have just considered, it is not so much that cancer masked the symptoms of intussusception as that it prevented or kept down all those inflammatory changes which an intussusception usually brings about; and which, in their turn, are the causes of the intense and characteristic symptoms of this lesion. And if I might conjecture the way in which the presence of cancer in one organ thus mediates the absence of inflammation in another, I should surmise that it did so mainly by diminishing that afflux of blood which inflammation implies. Whether such a diminished afflux should be ascribed to the attraction exercised by the vascularity of the cancerous deposit—which would thus have some analogies to a counter-irritant—or to phenomena more specifically engaging the nervous system, one cannot usefully attempt to decide in the present state of our knowledge.

## EXPERIMENTS ON FOOD; ITS DESTINATION AND USES.

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(*Concluded from p.* 393.)

*Experiment 7th.*—Three cages were constructed for rats, exactly alike, and as simple as possible, having no partition or division into compartments in the interior. They measured thirteen inches in length, eight inches in width, and six inches in depth. Thus they were oblong, being in size and shape like a large cigar-box. The bottom, sides, and one end were composed of common deal, with wire work above and at the other end. The wire work at the end was fine and close, so that when the cages were placed upright upon this end the urine could escape freely through it; but the passage of faeces and other solid particles was prevented. To this end a funnel was accurately adjusted, which terminated by fitting into the neck of a small bottle. Thus when I wished to collect the urine I had only to place the cages in an upright position, and to connect to them the funnels and bottles.

I obtained six tame rats, and kept them together in a squirrel's cage for seven days upon an exclusive diet of wheat and water.

They were then, on Oct. 21st, at twelve noon, divided into three pairs in such a manner that the respective weights of the pairs should correspond as nearly as possible, and a pair was placed in each of the cages just described. Two small tin cups were secured in the cages for their food and water, and a little tow was given them to lie on, which they never attempted to eat. On the days when the urine was collected, the tow was of course removed.

They were still fed for another week upon the diet of wheat and water, and at the expiration of this period, on Oct. 28th, twelve noon,

The first pair weighed 12¼ oz.
Temperature in rectum was 102° and 101¼°.
The second pair weighed 12 oz. 7 drs.
Temperature in rectum was 102° and 102°.
The third pair weighed 13 oz. 5 drs.
Temperature in rectum was 102¼° and 101°.
Temperature of room was 62°.

The quantity of wheat they consumed from Oct. 28th, twelve noon, to Oct. 29th, twelve noon, was—

First pair, 7 drs.
Second pair, 7 drs.
Third pair, 7 drs.

The urine was collected from Oct. 28th, twelve noon, to Oct. 29th, twelve noon.

First pair passed 336 grs., containing N. 4·58 grs.
Second pair passed 243 grs., ,, N. 4·10 grs.
Third pair passed 350 grs., ,, N. 5·34 grs.

Oct. 29th, twelve noon.—The first pair were now placed on the diet of arrowroot, sago, tapioca, lard, and suet, previously described. This I call the non-nitrogenous diet.

The second pair were placed on the diet of lean veal. This I call the nitrogenous diet.

The third pair were placed on a diet composed of a combination of the former ones. This I call the mixed diet.

As the following details will show, I particularly observed from time to time—

The amount of food consumed.
Changes in the weight of the rats.
Their temperature.
The quantity of urine passed, and the amount of nitrogen it contained.

The quantity of food they consumed from Oct. 31st, twelve noon, to Nov. 1st, twelve noon, was—

Non-nitrogenous, 6 drs.
Nitrogenous, 12 drs.
Mixed, 10 drs.

The quantity of food consumed from Nov. 4th, twelve noon, to Nov. 5th, twelve noon, was—

Non-nitrogenous, 6 drs.
Nitrogenous, 16 drs.
Mixed, 14 drs.

The urine was collected from Nov. 4th, twelve noon, to Nov. 5th, twelve noon—

Non-nitrogenous passed 203 grs., containing N. 2·60 grs.
Nitrogenous ,, 804 grs., ,, N. 19·70 grs.
Mixed ,, 449 grs., ,, N. 9·70 grs.

Nov. 5th, one P.M.—

Non-nitrogenous weighed 11 oz.
Temperature in rectum, 101° and 101°.
Nitrogenous weighed 11 oz. 5 drs.
Temperature in rectum 102° and 100°.
Mixed weighed 14 oz.
Temperature in rectum, 103¾° and 101°.
Temperature of room, 58°.

Quantity of food consumed from November 6th, twelve noon, to November 7th, twelve noon—

Non-nitrogenous, 5 drs.
Nitrogenous, 16 drs.
Mixed, 13 drs.

On the morning of November 11th one of the rats—the smaller of the two—on the nitrogenous diet died, I know not from what cause. It weighed after death 2½ oz.

Quantity of food consumed from November 11th, twelve noon, to November 12th, twelve noon—

Non-nitrogenous, 5 drs.
Nitrogenous (now one only), 11 drs.
Mixed { Non-nitrogenous, 5½ drs. / Nitrogenous ... 7½ drs. } = 13 drs.

The urine was collected from November 11th, twelve noon, to November 12th, twelve noon.

Non-nitrogenous passed, 172 grs., containing N. 1·02 grs.
Nitrogenous (one only) passed, 482 grs., containing N. 12·16 grs.
Mixed passed, 405 grs., containing N. 6·20 grs.
November 12th, twelve noon—
Non-nitrogenous weighed 9½ oz.
Temperature in rectum, 101¼° and 100¼°.
Nitrogenous one weighed 6 oz. 3 drs.
Temperature in rectum, 99°.
Mixed weighed 13 oz. 6 drs.
Temperature in rectum, 101° and 101°.
Temperature of room, 55°.

Quantity of food consumed from Nov. 14th, twelve noon, to Nov. 15th, twelve noon—
Non-nitrogenous, 4 drs.
Nitrogenous one, 11 drs.
Mixed { Non-nitrogenous, 3 drs. / Nitrogenous ... 8 drs. } = 11 drs.

Quantity of food consumed from Nov. 18th, twelve noon, to Nov. 19th, twelve noon—
Non-nitrogenous, 5 drs.
Nitrogenous one, 10 drs.
Mixed { Non-nitrogenous, 4 drs. / Nitrogenous ... 8 drs. } = 12 drs.

The urine was collected from Nov. 18th, twelve noon, to Nov. 19th, twelve noon.
Non-nitrogenous passed, 25 grs., containing N. ·30 grs.
Nitrogenous one passed, 782 grs., ,, N. 17·07 grs.
Mixed passed ... ... 166 grs., ,, N. 3·73 grs.
Nov. 19th, twelve noon—
Non-nitrogenous weighed 8 oz. 6 drs.
Temperature in rectum, 101° and 101°.
Nitrogenous one weighed 6 oz. 3 drs.
Temperature in rectum, 100°.
Mixed weighed 13¼ oz.
Temperature in rectum, 99¼° and 99°.
Temperature of room, 45°.

On Nov. 21st, at eleven A.M., the remaining rat on the nitrogenous diet died rather suddenly. It weighed just after death 5 oz. I cannot account for its death. No cause could be discovered in a post-mortem examination. It is certainly curious that in this experiment both of the rats upon the nitrogenous diet should thus have died. Whatever cause may have produced death, I cannot believe that it resulted from the diet, for the other experiments show that rats will live well upon it for a very much longer period.

Quantity of food consumed from Nov. 21st, twelve noon, to Nov. 22nd, twelve noon—
Non-nitrogenous, 1 dr.
Mixed { Non-nitrogenous, 2 drs. / Nitrogenous ... 7 drs. } = 9 drs.

Quantity of food consumed from Nov. 25th, twelve noon, to Nov. 26th, twelve noon—
Non-nitrogenous, 3 drs.
Mixed { Non-nitrogenous, 3 drs. / Nitrogenous ... 5 drs. } = 8 drs.

The urine was collected from Nov. 25th, twelve noon, to Nov. 26th, twelve noon—
Non-nitrogenous passed 96 grs., containing N. ·43 grs.
Mixed passed ... 416 grs., ,, N. 4·60 grs.
November 26th, twelve noon—
Non-nitrogenous weighed 7½ oz.
Temperature in rectum, 101° and 101°.
Mixed weighed 13 oz.
Temperature in rectum, 102° and 101°.
Temperature of room, 58°.

Quantity of food consumed from Nov. 28th, twelve noon, to Nov. 29th, twelve noon—
Non-nitrogenous, 3 drs.
Mixed { Non-nitrogenous, 2 drs. / Nitrogenous ... 5 drs. } = 7 drs.

On the night of Dec. 2nd, the smaller of the two rats on non-nitrogenous diet died, apparently from inanition. All fat had disappeared from the body, which was in an extreme state of emaciation. The integuments of the head had been partly eaten by the other rat. The remaining live one was exceedingly weak and emaciated.
December 3rd.
The dead and live rat on non-nitrogenous diet weighed together 7 oz.
Temperature in live one, 99°.
Weight of rats on mixed diet, 12¾ oz.
Temperature, 100° and 100°.
Temperature of room, 55°.

The experiment was now stopped.
The remaining rat on non-nitrogenous diet was placed on a miscellaneous diet, and recovered.
The striking effects produced in the urine by the different diets will be seen at a glance in the following table:—
Three sets of rats upon the same diet of wheat and water.

| | | Total Urine, grs. | | Total N. grs. |
|---|---|---|---|---|
| Oct. 28, 29 | 1st set passed | 336, | containing | 4·58 |
| | 2nd ,, ,, | 243 | ,, | 4·10 |
| | 3rd ,, ,, | 350 | ,, | 5·34 |

The 1st set were placed on non-nitrogenous diet.
The 2nd ,, ,, nitrogenous ,,
The 3rd ,, ,, mixed ,,

| | | Total Urine, grs. | | Total N. grs. |
|---|---|---|---|---|
| Nov. 4, 5 | Non-nitrogenous, passed | 203, | containing | 2·00 |
| | Nitrogenous ,, | 804 | ,, | 19·70 |
| | Mixed ,, | 449 | ,, | 9·70 |
| Nov. 11, 12 | Non-nitrogenous ,, | 172 | ,, | 1·02 |
| | Nitrogenous (one only) ,, | 482 | ,, | 12·16 |
| | Mixed ,, | 405 | ,, | 6·20 |
| Nov. 18, 19 | Non-nitrogenous ,, | 25 | ,, | ·30 |
| | Nitrogenous (one) ,, | 782 | ,, | 17·07 |
| | Mixed ,, | 166 | ,, | 3·73 |
| Nov. 25, 26 | Non-nitrogenous ,, | 96 | ,, | ·43 |
| | Mixed ,, | 416 | ,, | 4·60 |

In this experiment the same striking facts were observed as in the previous ones.

Besides the progressive emaciation and debility visible in the rats on the non-nitrogenous diet, the rough and greasy state of the fur and the abrupt curve in the spine were remarkable.

It is interesting to observe the large proportion of nitrogenous food consumed by the rats which were fed exclusively upon this diet.

The large quantity of urine which the rats on nitrogenous diet passed—a quantity so large that the single rat passed, on the last occasion on which it was collected, between four and five times as much as the two rats on mixed diet, and more than thirty times as much as the two rats on non-nitrogenous diet, and which yielded a still larger proportional excess of nitrogen—was met by the consumption of a proportionally large quantity of water.

The experiments with nitrogenous diet (1, 4, and 6) render it certain that nitrogenous materials are not only calorifacient, but, at least under some circumstances, sufficiently so to maintain alone the requisite temperature. Nay, in comparing the temperature of the rats in Experiments 3 and 4, it will be seen that they actually produced more heat upon a diet almost exclusively nitrogenous than upon one almost exclusively non-nitrogenous, and this too in the absence of all active exercise.

The experiments with nitrogenous diet (1, 4, and 6) render it in the highest degree probable that, under certain circumstances, nitrogenous materials may prove directly calorifacient without forming tissue. For it can hardly be imagined, when the high temperature which the hawk and rats maintained is compared with the very inactive life they were compelled to spend, and with the loss of weight which the rats sustained during the experiment, that all the albuminous food which was consumed had previously formed tissue.

It has been asserted by Liebig,* Lehmann,† and others, that no class of animals can live without non-nitrogenous substances. But these experiments (1, 4, and 6) show that animals can live, and maintain not only their health and strength, but their temperature also, for a considerable time, even under unfavourable circumstances, upon flesh containing only a minute fraction of fat. Such a slight proportion must be but a poor representative of non-nitrogenous food.

The experiments with non-nitrogenous diet (2 and 3) seem to render it certain that non-nitrogenous substances are, at least under some circumstances, directly calorifacient without entering into the composition of tissue of any kind.

When the temperature which these rats maintained is compared with the extremely emaciated state to which they were reduced, it seems to me that no other conclusion can be drawn than that the non-nitrogenous materials must have been directly burnt in the blood; for if they had previously formed and repaired the tissues, why such extreme and general emaciation?

And in these experiments—especially in reference to this

* Animal Chemistry. † Lehrbuch der Physiologischen Chemie

question—I would remark, not only on the extreme waste of tissue generally, but on the entire absence of fat.

Experiment 3, with the non-nitrogenous diet, shows that all the nitrogen which was excreted in the urine, and much more, may be accounted for by the disintegration of the original tissues without assuming that any fraction had been assimilated from any other source during the experiment.

These experiments taken together show that, while life cannot be maintained without nitrogenous food, even though every other kind be abundantly supplied,—death in this case being the result of loss of tissue,—life, and even perfect health and the normal temperature, can be maintained, at least for a long period, upon a diet almost exclusively nitrogenous with proper inorganic substances—in which there exists only a small fraction of non-nitrogenous matter.

It is also worthy of observation, that in Experiments 2 and 3 the aggregate loss of weight was about 50 per cent.; but in the case of some of the rats which died in Experiment 2, it considerably exceeded this proportion.

In the numerous experiments of Chossat, Bidder and Schmidt, and others, the total loss of weight during the whole period of inanition in fasting animals, ranges from 31 to 52 per cent.

Although Chossat met with considerable variation in the extremes,—this seeming chiefly to depend on the kind of animal employed and its previous condition, more especially on the amount of fat present,—the average loss during the whole period in 48 experiments (5 on rabbits, 5 on guinea-pigs, 15 on turtle-doves, 20 on pigeons, 2 on hens, and 1 on a crow) was a fraction under 40 per cent., or two-fifths of the original weight.

Bidder and Schmidt, in their experiments on cats (carnivorous animals), found a loss of weight of 51·7 per cent.

Moreover, Chossat found in his experiments that the results of an insufficient diet were in the end similar to those of total deprivation of food, the proportional loss being almost the same, although its rate was less.

The difference in this respect between the former experiments and mine may be perhaps in some measure accounted for by considering the immediate cause of death in the former ones. Chossat satisfactorily showed that the subjects of his experiments died from cold. In my experiments, the animals having been freely supplied with calorifacient food, this cause of death was for a while averted, so that time was allowed for a further disintegration of tissue; the action of the food having been doubtlessly assisted by the moderate warmth of the place where they were kept. This view is confirmed by the fact that in my experiments no striking loss of temperature was observed; whereas Chossat found that birds, when wholly deprived of food, suffered a progressive, though slight, daily diminution of temperature. The loss at first was most conspicuous in an increase of the diurnal variation, averaging 6° instead of 1½° Fahr., and gradually increasing with loss of strength. On the last day of life there was a loss of 25°. Bidder and Schmidt in their experiments observed a difference of 10° and 11° Fahr.

In my experiments, therefore, I regard the loss of tissue as the great cause of death.

It seems to me that one most important element which has been overlooked in the question of *loss* in relation to *time* is the external temperature to which the starving animals were exposed.

When their temperature is maintained from external sources, or when they are freely supplied with calorifacient food, warm-blooded animals may die rather from waste than loss of temperature, as perhaps is the case with cold-blooded animals when they are starved.

Lastly, I would point out the significant fact that, while in these experiments the weight, strength, and general condition of the rats varied very widely under the different diets to which they were subjected, no considerable fluctuation was observed in their temperature. Even the slight variation from time to time recorded seemed rather to result from other causes than to depend directly on the food.

In Experiment 7, in which three sets of rats were subjected at the same time, and under similar circumstances, to the different diets,—non-nitrogenous, nitrogenous, and mixed,—and which is therefore a repetition of the previous ones, the same general results were obtained, and the foregoing conclusions confirmed.

These experiments do not include all that have been performed on the subject; but the others were more or less incomplete or imperfect, either from some accident, such as the death or illness of a rat, or from some error or omission of observation. But I may mention that the results I obtained were, so far as they went, confirmatory of those which are recorded.

# A Mirror

## OF THE PRACTICE OF

# MEDICINE AND SURGERY

## IN THE

# HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORGAGNI. *De Sed. et Caus. Morb.*, lib. 14. Proœmium.

## ST. BARTHOLOMEW'S HOSPITAL.

### CASES OF INJURY RECEIVED DURING THE LATE ILLUMINATIONS AND PROCESSION.

(Under the care of Mr. SKEY and Mr. PAGET.)

ON the 7th March, two patients were admitted into the wards. The first, Frederick Parsons, a workman employed at St. Paul's Cathedral, who received a blow on the head from a hammer, and sustained a scalp wound. He left the hospital after a few days' stay.

The second case was more serious, and the injury occurred during the procession. Rosetta Lion, wife of a tradesman, a stout fleshy person, fell off a plank, and sustained a compound fracture of the leg, or rather a compound dislocation of the foot outwards, with fracture of the fibula three inches above the ankle. The inner malleolus was broken off, and the tibia projected about two inches through the skin. Mr. Skey sawed off about an inch of the projecting piece of bone, and the limb was properly set. Phlegmonous erysipelas unfortunately set in, with gangrene, and she died a few days afterwards.

On the night of the illuminations (March 10th), three females were brought into the hospital dead,—namely, Ellen Giles, a servant, aged nineteen; Caroline Jane Mitchell, aged twenty; and Ann Harding, aged sixty. These were three out of six persons who were crushed or trodden to death: two near the Mansion House at eight o'clock, and four at a later hour at the foot of Ludgate-hill.

Inquests were subsequently held at the hospital upon those brought in dead, and also upon Elizabeth Grobe, aged thirty-two, the widow of an engraver, whose body was lying in a house in Farringdon-street close by. In the evidence given by Mr. Ludlow, the house-surgeon, he stated that he believed Giles had probably died from a fracture of the base of the skull; Harding, from disease of the heart, of which she had predisposing symptoms, accelerated no doubt by excitement; and Mitchell, from suffocation. The jury found a verdict to the effect that the death of Giles, Mitchell, and Grobe was the result of accident, and that of Harding from natural causes aggravated by excitement.

It was stated in the public papers that Ann Hawkes was crushed near the Mansion House, and was taken to St. Bartholomew's. We believe the case was that of Ann Harding, mentioned above.

In the course of the night of the 11th, between twenty-five and thirty persons were brought to the hospital, and received the attention of Mr. Ludlow and his assistants. The injuries were scalp wounds, broken legs and arms, dislocated shoulders, fractured ribs, and other lesions. Five of these remained as patients of the hospital, and the remainder were conveyed away to their homes.

During the following week, about thirty out-patients were treated for broken collar-bones, fracture of the forearm and wrist, broken ribs, sprained ankles, and torn scalps. These were attended to by Mr. Vernon, the house-surgeon on duty.

## GUY'S HOSPITAL.

### CASUALTIES RESULTING FROM THE LATE PROCESSION AND ILLUMINATIONS.

THE particulars of the accidents occurring on the 7th and 10th of March, as the result of the procession and illuminations, admitted into Guy's Hospital, have been kindly furnished by Mr. Montague F. Evershed, the dresser of the patients.

Catherine Caney, aged forty-eight, married, and residing at

Boss-street, Horsleydown. Admitted March 7th, with a lacerated wound of the leg, caused by being pushed off some steps in the Old Kent-road. Is now nearly well.

Isaac Walker, aged forty-six, married, and living at Stamford-hill. Admitted March 10th, with fractured ribs and neck of the humerus, &c. These injuries resulted from being thrown off a van on London-bridge. He died five days after admission.

John Macpherson, aged thirty, single, and residing at Maldon-road, Kentish-town. Admitted March 10th, with fractured fibula, having been pushed down by the pressure of the crowd in Thames-street. He is now, however, well.

James Dobbs, aged forty-four, married, and residing at Gardner-row, Bridge-road, Victoria-park. Admitted on the 10th of March, with fractured tibia and fibula. The injury occurred in the Poultry from the pressure of the crowd, and was a very bad fracture.

William J. Harvey, aged nine, and living at New-street, Hackney-road. Admitted March 10th, with laceration of the integument and muscles of the leg, and compound comminuted fracture of the left hand. He was run over by a loaded timber waggon on London-bridge. Primary amputation of the left thigh and hand was performed, and he is progressing very favourably.

Harriet Chad, aged forty-two, married, and residing at Highworth-street, Lisson-grove, Paddington. Admitted on the 10th of March, with fractured tibia and fibula, resulting from the pressure of the crowd at the triumphal arch, London-bridge. The patient is progressing favourably.

Mary Ann Ketcher, aged fifty-seven, married, and residing at Thomas-street, Horsleydown. Admitted March 5th, with effusion of blood into knee-joint, and fractured fibula. These injuries were due to the same cause as in the preceding case, and occurred at the same place. She is progressing favourably. (Though this last patient received her accident on the 5th, it has been recorded because it resulted from the crush at the triumphal arch, London-bridge.)

Besides the above, there was a considerable number of cases treated as out-patients; the injuries being minor fractures, scalp wounds, bruises, &c. We were informed that these could be numbered in dozens.

## ST. GEORGE'S HOSPITAL.

### TWENTY-SIX CASES OF INJURIES SUSTAINED ON THE OCCASION OF THE LATE ILLUMINATIONS AND PROCESSION.

THE following is a summary of the accidents attended to on the 7th and 10th of March by Mr. Frederick Wm. Maude, house-surgeon to the hospital, and kindly furnished by that gentleman:—

*Out-patients on the 7th.*

John Solomon, aged thirty-four: bruised toe.
Jeremiah Newland, aged fourteen: fractured clavicle.
Wm. Arthur, aged thirty: fractured sixth rib.
Joseph Gladstone, aged twenty-nine: fractured nasal bones.
Sophia Shain, aged thirty: sprained ankle.
Mary Keedle, aged thirty: fractured rib.
Elizabeth Sewel, aged fourteen: bruised hand.

An hussar was brought in, having been thrown from his horse in the Park: he had a bruised knee.

*In-patients on the 7th.*

Charles Dyer, aged thirty-five: dislocation of hip.
Edward Doughty, aged eight: fractured base of skull. Run over by a cab. Died ten minutes after he was brought in. No post-mortem.
George Perry, aged sixty: fractured spine. Fell off the urinal in the Park. Died eight days after admission. Post-mortem: fourth dorsal broken in six pieces.
Charlotte Knowles, aged twenty-two: concussion and bruised thigh. Fell with the above.
Sophia Bridges, aged sixty-three, widow of a medical man: fractured leg. Fell from a bench in the Park.
Jas. Pippett, aged twenty-seven: concussion of spinal cord.
Benj. Angel, aged sixty-seven: bruise of leg.
Thos. House, aged forty-one: effusion into the knee-joint.

*Out-patients on the 10th.*

Giacomo Bonetti, aged twenty-five: fractured ribs.
Leonard Patrick, aged twenty-five: scalp wound.
Wm. Harris, aged forty-six: scalp wound.
Charles Ashby, aged thirty: scalp wound.
James Prior, aged forty-six: fractured surgical neck of humerus.

*In-patients on the 10th.*

Eliza Kent, aged twenty-four: scalp wound, bone exposed.
Frederick Ruff, aged seven: lacerated wound of head.
John Robson, aged sixty-two: scalp wound; died in three days. Post-mortem: fractured skull, recent clot in brain, diseased heart and kidneys.
Jane Neeld, aged seventy: fractured lower end of femur.
Benj. Atfield, aged thirty-two: fractured leg.

A woman dropped down dead in the Park on the morning of 7th. Post-mortem: fatty heart.

In the foregoing summary there are 26 cases, of which 21 were males and 5 females. The injuries sustained were fracture in 12, bruises and wounds in 13, and one dislocation. The skull was fractured in 2 patients, and the result was fatal in both, as also was a fracture of the spine. The leg was broken in 2, and the thigh in one instance. Of the humerus (surgical neck of), the clavicle, and nose, there was each a case of fracture, and 3 of broken ribs.

## ST. THOMAS'S HOSPITAL.

### FOUR CASES OF INJURY WHICH OCCURRED DURING THE FESTIVITIES.

MR. WHITFIELD has kindly informed us that, on the night of the illuminations (March 10th), not a single case of accident was admitted into this hospital.

On the 12th of March, Samuel Morden, a carpenter, was admitted for a gunshot wound of the hand, the accident having occurred at Chelmsford on the night of the 10th.

The following received relief as out-patients:—

March 10th.—An unknown female: fracture of the radius.

11th.—George Cole: fracture of a rib on the night of the 10th; came to the hospital next day.

31st.—Charlotte Ashley; fractured rib on the night of the 10th, but did not apply at the hospital until the 31st.

The above are all the cases, with the exception of two or three unimportant ones that came to the hospital as out-patients a day or two afterwards, but which at the present time cannot be identified.

## KING'S COLLEGE HOSPITAL.

### COMPOUND FRACTURE OF THE FOOT FROM THE BURSTING OF A CANNON ON THE DAY OF THE ILLUMINATIONS.

(Under the care of Mr. FERGUSSON.)

MR. W. J. SMITH, the house-surgeon, informs us that there was not a single case of accident brought to the hospital directly from the streets during the late procession and illuminations. A few days after, a man was sent from Highgate with a very bad compound fracture of the foot, caused by the bursting of a cannon on the day of the Prince's wedding. An attempt was made to save the foot, but phlegmonous erysipelas set in, and, although this has now disappeared, the patient is in a very low and exhausted condition.

## UNIVERSITY COLLEGE HOSPITAL.

### CASES OF INJURY RECEIVED ON THE NIGHT OF THE ILLUMINATIONS.

(Under the care of Mr. QUAIN.)

THE cases admitted into this hospital were few, as it is situated out of the way of the scene of the accidents. The senior house-surgeon, Mr. Samuel Gee, has kindly furnished the following particulars of cases treated:—

1. Frances Black was pushed down by a crowd of men near to Shoolbred's illumination in Tottenham-court-road, and trampled upon. The result was a simple fracture of the tibia. She was admitted into the hospital, her leg was put up in a starch splint, and she is going on as favourably as could be desired.

2. An out-patient had the soft parts torn off the upper surface of the great toe. He was attended to at St. Bartholomew's on the night of the illuminations, but has since (for convenience) become an out-patient here. He is doing well.

3. Charles Lowdon was admitted on the night of the illuminations with fracture of both bones of the leg, simple in nature. It was put up in splints, and he is going on well.

## WESTMINSTER HOSPITAL.

### INJURIES RESULTING FROM THE ILLUMINATIONS.

THE following list of the casualties occurring on the night of the 10th ult. is as accurate as could be made out by Mr. Arthur Beadles, the house-surgeon, who has favoured us with it. Several other cases subsequently presented themselves for treatment, as at the other hospitals.

*Patients admitted into the hospital on March 10th.*

John Fincham, aged forty, brought in at six P.M. He was crossing the road at the foot of Westminster-bridge for the purpose of going through Palace-yard, when he was knocked down by an omnibus, and the sternal end of his right clavicle was fractured, together with four or five ribs, accompanied with emphysema of the upper part of the front of the chest. He is progressing favourably.

Ann Mills, aged fifty; knocked down opposite the Horse Guards by the crowd, and both bones of the left leg fractured. She is doing well.

Charles Simmonds, aged forty-seven; injury to the hip-joint from a cab falling on him. He has recovered and left the hospital.

*Cases not kept in the hospital.*

Jane Brown; cut eye and face.
Fanny Wilmot; cut thumb.
Ann Lawrence; scalp wound.
William Row; sprained ankle.
Joseph Foster; scalp wound.
Jane Fogan; injured back.
J. Evans; wound of the hand.
E. Lawrence; wound of the face.
George Hodges; fractured humerus.
William Cummins; fractured humerus.

## WEST LONDON HOSPITAL.

### THREE CASES OF INJURY OCCURRING ON THE NIGHT OF THE ILLUMINATIONS.

(Under the care of Mr. BIRD.)

THE following details were kindly furnished by Mr. Philip R. Tomlinson, assistant house-surgeon to the hospital. Several other patients presented themselves with injuries of a much less severe character than those detailed.

Hannah Burgh, aged sixty-one. She went out to see the illuminations with some friends, and when opposite the Mansion House there was a general rush, and she became separated from her friends, and whilst she was trying to get out of the crowd some man got his elbow against her chest and pressed upon it with great force (she says she felt the bones give from the pressure), since which time she has suffered great pain in breathing and coughing, or on making any exertion. There is an evident depression of the sternum at the lower part.

Catherine Parker, aged thirty-four. Went to see the illuminations, and whilst in Piccadilly was violently pressed against a cart wheel, her abdomen being severely crushed. She has had for some time continued pain in the abdomen, not being able in any way to exert herself; the pain is much increased on pressure. Her bowels have been obstinately costive ever since. Her right eyebrow was much bruised and cut near the root of the nose; the bridge of the latter was also bruised and swollen. Both eyes were blackened. She lost much blood. Was quite sober at the time of the accident. Severe headache followed the receipt of the injury. The bruises were treated with lotions and poultices, and are now getting better.

William Hooper, aged forty-two. Whilst coming down Ludgate-hill he stumbled and fell, his elbow striking the pavement violently. The pain soon went off, but next day he found his elbow swollen, and it has gradually been getting stiff ever since. He was hurt also in different parts of his body, from people trampling on him. There is now a good deal of effusion round the elbow-joint, and he is unable to continue his work.

## ROYAL FREE HOSPITAL.

### CASES OF INJURY OCCURRING ON THE NIGHT OF THE ILLUMINATIONS.

(Under the care of the Surgeons.)

MR. JOHN D. HILL, the house-surgeon, informs us that only two cases were treated on the above-mentioned night: one was a simple contusion of the knee, produced by a fall from a van; the other a fracture of a rib, from being crushed against the shaft of a cab.

On subsequent days several other persons presented themselves, and were treated as out-patients. Amongst them was a case of severe contusion of the forearm; and in another, the patient had been squeezed between two opposing forces, which produced temporary congestion of the brain, leaving a chemosed condition of the conjunctivæ.

## CHARING-CROSS HOSPITAL.

### INJURIES OCCURRING DURING THE LATE FESTIVITIES.

MR. WM. TRAVERS, the resident medical officer, has kindly forwarded the annexed report.

The following cases of accident were attended to on March 7th, and occurred during the passing of the royal procession:—

Lydia Constable, knocked down in Pall-mall, was brought into hospital with a dislocation of the humerus into the axilla. This was reduced, and she returned home.

John Daley—with a severe scalp wound, caused by the falling of some timber. He left, after having the wound dressed.

Ann Haley was knocked down by the crowd in the Strand, and received a wound of scalp; not so severe as to need her being detained.

The following accidents and emergencies occurred on the night of the 10th March:—

Jane Sansom and Ellen Riley were brought into the hospital as dead. It was found that they were suffering from severe fainting fits, occasioned by the great pressure of the crowd in Trafalgar-square.

Thomas Wilson had severely contused his knee, from being knocked down in Stamford-street.

Mary Coppin was admitted with a fractured thigh at the middle third, having been run over by a pleasure-van opposite the National Gallery. She remains in the hospital, and is doing well.

James Forbes was run over at the same time as the last patient. He had met with some severe contusions of both thighs.

No case of sudden death was brought to the hospital, nor have any of the above-named cases terminated fatally or progressed unfavourably.

## LONDON HOSPITAL.

### INJURIES OCCURRING AT THE ILLUMINATIONS.

(Under the care of Mr. CURLING.)

MR. J. G. KING, the house-surgeon, has informed us that the cases admitted through accident on the 10th ultimo were as follows:—

James Robbs, aged fifty-eight, accompanied by his wife and a party of friends, started at seven o'clock on the night of the illuminations (March 10th) in a van to see those in the city. The crowd was so dense that the party were two hours and a half going a mile and a half; and when they got to Aldgate Church there was great pushing, shouting, and excitement. A van attempted to force its way before that in which the party were, and the wheels of both vans came into collision. Robbs, who was standing on the tail-board, was jerked off with great violence among the crowd. The people held back, and did not trample upon him. His leg was broken and lacerated, and he was forthwith conveyed to the London Hospital. When admitted, Mr. King, the house-surgeon, found the injuries to be a compound fracture of the tibia and fibula. Gangrene supervened, and amputation was performed on the 24th. On the 29th death ensued from sloughing of the stump.

Rachel Michael, aged thirty-two, in stepping off the pavement to avoid the crowd, fell upon a sewer-grating, and fractured the tibia and fibula. This patient is doing well, the splints having been removed on the 6th instant.

Benjamin Wood, aged nine, was knocked down by a cab, and received a lacerated wound of the scalp. There is now exfoliation of the bone, with cerebral symptoms, which give cause for anxiety as to his ultimate recovery.

The following cases occurred on the day of the procession (March 7th), the particulars of which were furnished by Mr. Appleyard:—

Jane Darling, of Stepney, aged fifty-eight, was thrown down in the crowd and dragged some distance. She was insensible for some time, and suffered from contusions and fracture of the radius. She refused to remain in the hospital, and was therefore made an out-patient; but she got worse, and died about ten days afterwards.

Catherine Mercy was admitted into the hospital with severe contusions all over the body and especially the back. She says she fainted and fell down, and was trodden upon. The next day there were marks of contusions, especially about the eyes, the conjunctivæ being suffused with blood. This is now (April 8th) beginning to be absorbed; but she has not wholly recovered, complaining still of pain and stiffness. She remains an in-patient.

Alice B——, aged seventeen, was admitted with severe contusions, blood being effused around the eyes and beneath the conjunctivæ. She was discharged in about a week.

One or two other cases were brought in at the same time.

## MIDDLESEX HOSPITAL.

### INJURIES AT THE LATE ILLUMINATIONS.

MR. E. MORGAN, house-surgeon, has kindly furnished the following statement:—

On the 7th ult. no case of accident was admitted as an in-patient into the hospital, and rather less than the average of minor cases were attended to in the surgery.

(1) About ten P.M. of the 10th ult., a man aged twenty-five, a greengrocer, was admitted with a slight abrasion over the left side of the chest, and suffering considerably from collapse, having been pressed by the shaft of his own van, while leading the horse, against the tail-board of another van in front of him; the accident arising, says the patient, from the van in front stopping suddenly. He shortly rallied somewhat; but as he was a weak and delicate subject he was kept in the hospital until the 17th, when he was discharged.

(2) J. G——, aged thirty, a waiter, admitted about three A.M. of the 11th ult., with fracture of the left tibia and fibula about the middle, having a little time previously been knocked down by a cab-horse while crossing at the corner of Coventry-street and Princes-street, Leicester-square. The patient is still in hospital, but doing well.

(3) L. S——, aged forty-nine, a needlewoman, admitted at nine A.M. of the 11th ult., with fracture of the right tibia and fibula in the lower third. The patient is a dissipated-looking person, and appears to be scarcely sober now. She says she had been drinking in the night, and does not know how the accident happened, but thinks it occurred about two A.M., since which time she had been lying in the doorways in Soho-square, having changed her place once or twice by order of the police. There was considerable deformity and ecchymosis about the seat of fracture. The patient is still in the hospital, and doing well.

The following cases were attended to in the surgery, and treated as out-patients:—

*March 10th.*

Male, aged twenty-five; contused elbow.
Male, aged thirty; contused wound of the nose.
Male, aged eleven; contused wound of the leg.
Female, aged one year and a half; incised wound of the hand.
Male, aged eighteen; incised wound of the brow.
Male, aged twenty-nine; contused arm.
Female, aged fourteen; contused wound of the temple.
Male, aged fifty-three; contused wound of the brow.

*March 11th.*

Male, aged thirty; sprained ankle.
Male, aged twenty-nine; cut lip.
Male, aged fifty-six; scalp wound.
Male, aged forty-six; scalp wound, and drunk.

## ST. MARY'S HOSPITAL.

### FRACTURE OF THE FIBULA.

ON the night of the 10th ultimo, a billiard-marker was admitted, under the care of Mr. Ure, with fracture of the fibula, received in the crowd adjoining the Marble Arch. He did well, and was dismissed.

We may remark here, that at the Great Northern and Metropolitan Free Hospitals no cases of injury presented themselves for treatment on the above-mentioned occasion.

A NEW EXAMPLE OF FERMENTATION due to the presence of infusorial animalcules, which are able to live without free oxygen and without any contact with the air, has been laid before the French Academy of Sciences by M. Pasteur, who has already distinguished himself by his researches in this branch of science.

# Medical Societies.

## OBSTETRICAL SOCIETY OF LONDON.

WEDNESDAY, MARCH 4TH, 1863.

DR. OLDHAM, PRESIDENT, IN THE CHAIR.

THE following gentlemen were elected as Honorary Fellows of the Society:—Prof. Martin, of Berlin; Dr. Beatty, of Dublin; Dr. Pagan, of Glasgow; Prof. Braun, of Vienna; Prof. Depaul, of Paris; and Prof. Faye, of Christiania.

The following gentlemen were elected as ordinary Fellows of the Society:—J. H. Galton, M.B., Brixton; H. V. Garman, Esq., Bow-road; W. Hanna, Esq., Belfast; R. W. Jenkins, Esq., Philpot-lane; J. W. J. Oswald, Esq., Kensington; Josiah T. Powell, M.D., City-road; John Rowland, M.D., Strata Florida, Lampeter, Cardiganshire; Joseph Rushforth, Oxford-terrace; J. H. Tutin, Esq., Ripon.

The President announced that the volume of Transactions for the past year would be in the hands of the Fellows in a few days.

### READY-MADE PLASTERS.

Dr. TILT drew attention to the fact that when a hundred or a hundred and fifty grains of common starch are boiled in an ounce of glycerine, the result is a very stiff glutinous compound, which has no smell, and does not become rancid; and although sticking firmly to the skin, it can be removed and reapplied. Instead of ordering belladonna plaster, Dr. Tilt prescribes three grains of sulphate of atropia to be rubbed down with a few drops of glycerine, then incorporated with an ounce of hard glycerine ointment, and thickly spread by the patient on gutta-percha cloth or impermeable wash cloth. This can be removed for the morning ablutions, and reapplied after spreading a little more ointment on the same plaster. Morphia and other alkaloids are prescribed in the same way. The samples exhibited by Dr. Tilt were made by Mr. Bullock, of Hanover-street.

Dr. MEADOWS exhibited a specimen of

### UTERINE POLYPUS WHICH HAD COMPLICATED LABOUR.

The tumour, which had completely filled the vagina, was about twice the size of the fœtal head. During the labour it was entirely protruded by the descent of the child, but was returned on its expulsion. It again, however, descended, and was removed by ligature two days after delivery. The growth was attached by a long pedicle to the cervix uteri, and weighed when removed nearly four pounds. The patient did well.

### ON DISPLACEMENT, ETC., OF THE BLADDER AS A CAUSE OF TEDIOUS LABOUR.

BY W. H. BROADBENT, M.D. LOND.

The purport of this communication was to show that, besides the mechanical obstruction which may be presented by the prolapsed and distended bladder to the descent of the head of the child, prolapsus of the bladder, complete or partial, frequently renders the first stage of labour long and painful. The uterine contractions, causing pain in the displaced bladder, it was said, were replaced by spasmodic contractions of the abdominal muscles, which forced down the uterus, but had no effect in dilating its mouth. These were attended with much suffering, of a character very different from the natural labour pains at this stage, which with tactile examination would lead to a recognition of the cause. The measures recommended for the relief of the pain and for expediting the progress of the labour were, the supine position, prevention of accumulation of urine by the use of the catheter, and, in severe cases, chloroform.

Cases were given in support of these conclusions.

### OBSERVATIONS ON OVARIOTOMY &c., STATISTICAL AND PRACTICAL; ALSO, A SUCCESSFUL CASE OF EXTIRPATION OF BOTH UTERUS AND OVARIES.

BY CHARLES CLAY, M.D., MANCHESTER.

Dr. Clay gave a brief and interesting outline of his experience on this very important branch of surgery. Of 109 peritoneal sections, of which 104 were for ovarian extirpation, 3 for cutting down upon the tumour to establish ulceration where its removal was known to be impracticable, 1 for the Cæsarean operation, and 1 for the removal of both uterus and ovaries. Of the 104 ovarian cases, 72 recovered, 32 died; all the 3 ulcerative cases recovered; the Cæsarean section lived

to the fifteenth day; and, lastly, the case of entire removal of both uterus and ovaries recovered. Of the 32 deaths, 10 died from the immediate consequences of the operation, 10 from inflammation, 10 from prostration, and 2 from hæmorrhage. The great majority of the first and second series were young females, as well as a portion of the third division. Those from prostration were chiefly elderly females. Some other statistical facts were elicited, as well as the following remarks from the author:—Dr. Clay still defends the raised temperature of the room for operation, and attributes much of his success to its influence; is not certain if chloroform has added anything to the successful results, but values it highly as an agent which it would now be difficult to lay aside, although the first 14 of his cases were performed before it was discovered, and of which 9 recovered; and he still thinks, if a woman could face the difficulty without it, it would be in her favour. The large incision is still practised by him, and deemed far preferable to the smaller opening. Of course the author wished to be understood that the incision was to be commensurate with the tumour to be extirpated. Dr. Clay gave many reasons for this preference. The distressing vomiting he conceives to be in a great measure owing to the use of chloroform, as he saw but little of it in the first 14 cases where it was not used. For this troublesome symptom he advises patience until the blood has got rid of its load of carbon, the simplest of drinks, and as little food as possible. Some very well ascertained facts of critical days were adduced, which would require too much space to dwell upon; suffice it to say, the third, sixth, and ninth were the principal, and the causes of each were pointed out. No particular age seems to be prominent in respect to the success of these cases. Dr. Clay himself stated them to be about equally successful at all ages from sixteen to fifty-seven. Purgatives are not admissible; and he relies on enemas with ox-gall &c. This part of the paper was concluded by some interesting remarks on ovariotomy for the last twenty years, and the difficulties the author had to encounter, not the least of which was misrepresentation.

The author next gave in detail a new and interesting operation, which he believed to be the first of its kind, successful at least, in this country—namely, the entire extirpation of the uterus and its ovaries through the abdominal walls, which has ended most fortunately, the lady returning to her friends on the thirty-fifth day after the operation, and still continuing well, thus establishing another great fact in reference to abdominal surgery. The case was that of a fibroid uterus of eleven pounds weight, with the ovaries in an unhealthy condition; and the tumour by its growth had latterly so entirely filled up the cavity of the pelvis as to render the passage of the fæces and urine extremely difficult. The particulars of the case throughout its progress were given. Dr. Clay does not suppose that many uterine cases could be advisedly extirpated, but thinks some of those densely-hard fibroid masses, where the constitution has not been greatly prostrated, might afford a fair prospect of cure under the knife.

Mr. BAKER BROWN prefaced his remarks by warmly thanking Dr. Clay for the very practical and admirable paper just read. Mr. Brown considered it one of the most valuable he had ever heard, and wished it had been brought forward a few weeks earlier, as it was calculated to strengthen the hands of other ovariotomists, and enable them to contend against those who doubted the value of the operation. With regard to the temperature of the room, Mr. Brown stated that he believed that Mr. Lane, than whom no one had been more successful in ovariotomy, disregarded this subject, as did also another gentleman present at the meeting, who had also had great success. For himself, Mr. Brown believed that where the operation was likely to be long, and the viscera long exposed, it was of great importance; but that where the operation was quick, and the viscera were kept back by hot flannels, the question of temperature would not affect the success. As to the long incisions, he believed Mr. Walne followed Dr. Clay; whereas Dr. F. Bird and Mr. Lane had contended for the short incision, and with good results. Mr. Brown always made a small incision first. If it appeared that on tapping the cyst the tumour could be withdrawn, he did not enlarge it; but if there appeared strong adhesions, or the tumour was very multilocular, he found it easy to make the incision larger, and agreed with Dr. Clay that it was advisable to see clearly where the adhesions and difficulties in removing the tumour were situated. At the same time, with the very large success of Dr. Clay, it was folly to say that short incisions were preferable to the long. Dr. Clay still preferred the ligature of Indian hemp. Mr. Brown had used it till the invention of the carpenter's callipers as a clamp, which he found more convenient and comfortable. He could not, however, agree with Dr. Clay as to the inadvisability of bleeding. In two or three cases where peritonitis had come on quickly after the operation, he had found venesection most valuable, and attended with success. He always advised hot linseed-meal poultices to be applied over the whole abdomen when there was a chance of peritonitis, believing that they kept hot longer than ordinary fomentations. Mr. Brown's experience as to the frequency of the ovary attacked was contrary to Dr. Clay's. He had examined many hundreds, he might say thousands of cases, but thought that one could not decide which ovary was diseased till an incision was made. His experience, from cases submitted to operation, was that the left ovary was most frequently affected. He agreed with Dr. Clay that age does not make much difference. He was glad to hear that Dr. Clay had come to the conclusion that the question of success did not depend on the operation itself, but on the after-treatment. Mr. Brown believed that in his earlier operations he lost more patients because the after-treatment was not so well understood as now. He had learned from Dr. Clay the valuable practice of never giving the patient anything but the most simple food till asked for. He preferred giving beef-tea and wine, if required, by the rectum for three or four days after the operation. Mr. Brown considered Dr. Clay's testimony valuable as to the great advantage of small over general hospitals for these operations, not on account of the operation itself, but because the nursing, ventilation, and atmosphere were so much better in small special institutions. Mr. Brown had twice removed both ovaries with success. He thought that the question of exploratory incisions had been unfairly treated by the profession. They were made with an honest endeavour to ascertain the truth before risking the patient's life. Mr. Brown had never seen a fatal result follow them, and thought they should be commended and encouraged, not condemned. He was glad to hear Dr. Clay say that in his last operation he had made it a stipulation that it should be left to him to decide whether he should proceed after making an incision. As to opium, Mr. Brown had at one time been as great an advocate for it as Dr. Clay; but believed that it increased the sickness, and he now never gave it unless imperatively called for

Mr. SPENCER WELLS said that he must not be supposed to undervalue the very useful paper of Dr. Clay, or to be ungrateful for the lessons which he had taught us all by his able advocacy of ovariotomy, if he (Mr. Wells) ventured to discuss two very important steps of the operation in which his own practice, and the practice in London generally, differed from that of Dr. Clay. Dr. Clay still advocated the long incision; and he still left the tied end of the peduncle and the ligature within the peritoneal cavity. He could boast of a success attending this practice of seventy per cent. of recoveries to operations, and as success was the best criterion in surgery, it might seem presumptuous to question the wisdom of any operative proceeding practised so successfully. But his (Mr. Wells') own experience had led him so decidedly to prefer the short to the long incision, and to keep the tied end of the pedicle outside rather than to leave it in, that he could not help suspecting that Dr. Clay's great experience in the operation had led him to success, in spite of a method which more recent experience had modified or corrected, and which men of less experience could not follow without great danger of failure. After long incisions, there was so much more exposure or escape of intestine during the operation, so many more serious symptoms after it, and so comparatively protracted a recovery, even in successful cases, that his (Mr. Wells') own experience had taught him to avoid any greater length of incision than was necessary for the exposure and removal of the cyst or tumour. Every inch in the length of incision appeared to add something to the chances against the patient, and in cases where he had the choice either of making a long incision and removing a tumour entire, or of breaking up a tumour and removing it through a small opening—even though ovarian fluid might unavoidably escape into the peritoneal cavity and require careful sponging for its removal—he would prefer this alternative rather than make a very long incision. So, in his experience, those patients in whom it had been necessary to leave the pedicle and ligature within the peritoneal cavity had suffered so much more after the operation, and their recovery had been so much more protracted than others where the peduncle had been kept outside, that he would always prefer to keep it out if he could, and so avoid the danger of absorption of the putrid matter of the strangulated stump, or the peritonitis connected with the effusion of fibrin thrown out to circumscribe the stump and ligature. It seemed probable that the frequent occurrence of peritonitis in Dr. Clay's practice

was in some measure due to his manner of treating the pedicle; for in his (Mr. Wells') own practice, peritonitis was a rare accident. Of eighteen fatal cases, it had only had any important share in the fatal result of two; in all the others, shock or exhaustion after the operation, or blood-poisoning, having been the cause of death; while in successful cases he hardly remembered peritonitis in any patient where the pedicle had been kept out. As to the temperature of the room, in his earlier cases he had followed Dr. Clay's practice; but latterly he had found it better simply to have the room kept comfortably—not excessively—warm, and after the patient was in bed to keep a good fire burning, and a window open night and day. In the use of opium, also, he had learnt to avoid all excess. If there was pain or restlessness, it was given in moderate doses, and repeated if necessary; but some patients had recovered without taking a single dose, and others with not more than two or three doses. Sometimes it was given to secure a good night, even if there was no pain. With regard to the removal of uterine tumours by abdominal incision, it was only under the most exceptional circumstances—where the life of the patient was in great danger from hæmorrhage or the effects of pressure—that such an operation as that so successfully performed by Dr. Clay could be justifiable. Pedunculated peritoneal outgrowths from the uterus might be removed with moderate risk, and so might in-growths towards the uterine cavity or vagina; but any attempt to enucleate interstitial fibrous tumours of the uterus, either by incision through the abdominal wall, or by incising the cervix per vaginam, was attended with such very great risk, that nothing but the most urgent necessity would justify the practice. He (Mr. Wells) said this rather as the result of his own observation, than as any conclusion suggested by Dr. Clay's successful case.

DR. CLAY, in reply, expressed his great gratification at the manner in which the paper had been received by the Society. With respect to the details of the operation, he adhered to the principles laid down in the paper. It was remarkable that many of the best recoveries after ovariotomy had taken place in his practice after making the long incision, and where the tumour was large he preferred it. The use of Indian hemp for ligatures he still preferred. With respect to the remarkable case of extirpation of the uterus, he would observe that on his way to town to attend the meeting he had accidently met the patient who had been the subject of the operation at a railway station, and in perfect health.

## ANTHROPOLOGICAL SOCIETY OF LONDON.

AT a meeting held on the 7th inst., a paper was read by R. T. Gore, Esq., F.A.S.L., on a "Case of Microcephaly." The individual in question was for a long time under his observation. She was a female, the offspring of healthy parents, and without any known instance of idiocy or defective intellect in the family. She lived to her forty-second year, and died of phthisis. Her height was about five feet; her figure slight and rather well-proportioned. The intellect was infantine—*i. e.*, corresponding to that of a child three or four years of age beginning to talk. Her habits were decent and cleanly; her gait unsteady and tottering. Accurate photographs and casts of the brain were exhibited. The occipital foramen was situated far back, at a point corresponding to one-fifth the antero-posterior diameter of the basis cranii. The anterior lobes of the brain were much narrowed towards their apex; the posterior lobes left a large portion of the cerebellum uncovered. The weight of the brain was remarkably small. Carefully weighed when recent, after the membranes and vessels had been removed, it weighed 10 oz. 5 grains avoirdupois (= 283·75 grammes). The smallest case previously known was "Theile's case," mentioned by Wagner, in which the brain weighed 300 grammes. The idiot's brain in St. Bartholomew's Hospital, described by Owen, weighed 332 grammes. There is no evidence of any disease having been concerned in the production of the microcephaly in the present case. The mental phenomena were very similar to those of early infancy, contrasting strongly with those exhibited by ordinary idiots.

Professor OWEN remarked that instances of analogous arrest of development had been recorded in the different varieties of the human species, as, *e. g.*, in the negro variety called by her showman the "Hottentot Venus," and in the hybrid Spanish and Indian children from St. Salvador, termed "Aztecs;" likewise in the brain weighing 1 lb. 4½ oz., described by Dr. Todd, and in the present instance. So far as his (Professor Owen's) researches extended, the present instance exemplified the smallest instance of a brain, otherwise of sound structure, in which the individual had lived in health beyond maturity to middle age. The brain so arrested was, however, widely different from that of the quadrumane. Professor Owen entered into an extended description of the psychological characters associated with the cerebral modifications in those idiotic brains which had been observed by him.

Mr. CARTER BLAKE read extracts from Rudolph Wagner's "Vorstudien," and from the valuable tables compiled by Dr. Peacock (St. Thomas's Hospital), respecting the average cerebral development, and the occasional abnormal departures from it exemplified by microcephalic and macrocephalic brains. He also urged the advantages which would accrue to science if translations of the works of Wagner and Gratiolet were in the hands of every student, and stated that the preparation of such works was in contemplation by the Society.

An animated discussion ensued, joined in by Professor Owen, Mr. Robert Dunn, Mr. Carter Blake, Mr. Prideaux, Dr. Drachaichia, Mr. Burke, Mr. Mackie, the Duke of Roussillon, and the President (Dr. Hunt).

The Rev. H. F. RIVERS presented to the Society the remains of two human skeletons, discovered in brick-earth at Chatham, and which exhibited a low frontal development, rather large frontal sinuses, and well-marked muscular impressions on the limbs.

# Reviews and Notices of Books.

*Memories of the Past, and Thoughts on the Present Age.* By JOSEPH BROWN, M.D. pp. 172. London: Longman and Co.

DR. BROWN, in this interesting little volume, gives us his opinion on subjects which all reflecting men will allow to be among the most important of the day. The nature of his own mind, and of the opportunities which throughout a long and active life he has enjoyed, as they have sufficed to make him one of the most accomplished of our provincial physicians, also enable him to write with unusual interest and weight. The chief subjects dwelt upon by Dr. Brown are, the respective importance of the moral and intellectual qualities of nations; German theology and metaphysics; English morality and English crime, and the character of recent criminal legislation; the present time and its prospects. It will not be expected that we should discuss these subjects—unmedical as they are—in any detail; but we cannot forbear placing before our readers a few observations, which will enable them to judge of the character of the book, and, we trust, to read it for themselves.

Dr. Brown, in opposition to the views of the late Mr. Buckle, holds that the only steady advance of nations is that which is based upon the equal cultivation of the moral and intellectual faculties; of the two, the former being the more important. "All my experience tells me that the real value of any character, individual or national, depends mainly on the proportion in which the unchanging (moral), not the variable, element enters into its composition; where that of the former is small, the result being a character but little estimable."

The utmost polish of which nations are susceptible may be acquired; the intellect may be cultivated to the utmost; and yet the nation may come to exemplify the most fiendish atrocity, and pass through the most frightful suffering. Or, as in the case of America, upon which we are willing to hope that Dr. Brown is a little too severe, great intellectual acuteness may coexist with bad manners, bad taste, bad feelings, and bad institutions, and so prove no safeguard against a war such as is now being carried on, of which the author says, "So disgraceful a spectacle, either in a political or moral point of view, has not been presented to the gaze of the world for a period of time so long that we have no power to calculate it."

In Chapter IV. are contained the author's views on Crime in England and Criminal Legislation. He is clearly of opinion, with many other wise and philanthropic men, that our late treatment of criminals has erred in an excess of kindness, if not in the defect of severity. "To those minds which human

law alone deters from crime, human law must be presented as something inexorably stern and especially *certain*."

An important part of this chapter is the discussion of the plea of insanity as an argument with counsel for the defence in cases of murder. The remarks on this subject are based on the case of George Clark, who murdered Mr. Frater, of Newcastle, and whose sentence was commuted on the ground of insanity.

Lastly, this is a pleasant book; not only elegant in its style, sound in its reasoning, lofty and Christian in its tone—but pleasant. We like the author none the less for confessing that he is a good old Whig, and feels often tempted to call the Reform Bill of 1832 the "maxima charta" of English liberty. Not that for this we need to be Whigs, but it is refreshing in these days to come across a politician who frankly owns to having a party and a creed. We take down our *Spectator* with fresh zest, and verify for ourselves what the author says, that Mr. Addison anticipated Adam Smith in the expression of good free-trade doctrine put into the mouth of *Sir Andrew Freeport*—a happy contrast to *Sir Roger de Coverley*. We like the author the more because he likes Addison. Leaving "The Georges" willingly all to Mr. Thackeray, the author comes to our own time and our own Court. We hope Dr. Brown may have a little overstated—and yet we fear he has not—the necessity of the case in saying that America is doomed for long years to be the abode of anarchy and confusion. Referring to home, the author displays that rare peculiarity in men at his years—not exactly youthfulness, but hopefulness. Most men at eighty could talk only of the past, in disparagement of the present. It is the reverse with our author. He is too much an observer still, and too keenly delighted with the present, to dwell more on the past than is necessary to show the superiority of the present: the Court virtuous and exemplary—the people loyal and happy beyond all precedent. Few juster or more discerning pictures have been drawn of the great Prince whose loss we still deplore than are to be found in this last chapter. But we must hold our hand, cordially recommending the "Memories" and "Thoughts" of this veteran practitioner.

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*A Manual of Elementary Chemistry.* By GEORGE FOWNES, F.R.S. Ninth Edition. Revised and Corrected by Dr. BENCE JONES and Dr. HOFMANN. London: Churchill.

THIS work has frequently been noticed in the columns of this journal, and always in terms of commendation.

There are few works of a professional or scientific character of which new editions have been more rapidly demanded than the present. This no doubt arises mainly from the character of superiority impressed upon it by the late Professor Fownes, but in part also is due to the great care bestowed upon the preparation of the new editions by the present editors, Dr. Hofmann and Dr. Bence Jones.

To this edition many important additions have been made. Thus, in Inorganic Chemistry, an outline is given of Spectrum Analysis and of the discoveries made through it, and an abstract of the researches of Professor Graham on Diffusion and Dialysis; in Organic Chemistry, an account of the recent extension of the theory of acids and of polyatomic alcohols, and a chapter on the new colouring matters derived from coal-tar, form the chief additions; while in Animal Chemistry, a notice of the experiments of Pettenkofer on Respiration has been appended.

The least satisfactory part of the book, contrary to what might have been anticipated, is the chapter on the Urine. A reference therein is made to "Hassel," in connexion with the remarkable discovery of indigo in human urine. This of course should be "Hassall;" a name so familiar that such gross misspelling of it is scarcely excusable.

Altogether, the work in its present form fully sustains the reputation acquired by the preceding editions.

## INJURIES RESULTING FROM THE LATE PROCESSION AND ILLUMINATIONS.

THE number of casualties treated at the various hospitals on the occasion of the recent public rejoicings was very large. We publish in other columns full details of their nature and consequences. It will be seen that the list is very formidable, and notably so in the city. At St. Bartholomew's Hospital, three persons were brought in out of the six crushed to death on the night of the illumination in the neighbourhood of Ludgate-hill; a fourth died from a fracture, following injury, during the procession; and a fifth inquest was held on the poor woman who died from disease of the heart in the crowd. On the night of the 11th, about thirty persons were brought in with scalp-wounds, broken legs and arms, dislocated shoulders, and other injuries. During the following week, about thirty more out-patients were treated for similar injuries. On the whole, at St. Bartholomew's there were about sixty injuries, from torn scalp up to broken legs, and five cases of death. At Guy's, also, there were some dozens of minor injuries, fractured ribs, clavicles, scalp-wounds, &c., and six cases of fractured leg, one resulting in death, and one in amputation of the left thigh and hand. This latter is progressing favourably. At St. George's there were twenty-six cases, of which twenty-one were males, and three females. The injuries were—fracture in twelve, bruises and wounds in thirteen cases, and one dislocation. The skull was fractured in two patients, and the result was fatal in both; so also was a fracture of the spine. The leg was broken in two, and the thigh in one instance. Of the humerus (surgical neck of), the clavicle, and nose, there was each a case of fracture, and three of broken ribs. There were a dozen slight injuries at Westminster Hospital, with two severe cases of fracture, one of the leg, and one of five ribs and the clavicle. At Charing-cross, eight cases, one severe, of a fractured thigh; a couple of fractures at St. Mary's Hospital, and a few slight injuries, with a small contingent of casualties for the remaining hospitals, complete the list. It is far larger than the casualty report of many a sharp engagement, and at Fort Sumter many thousand pounds of lead were fired away without producing a single casualty.

The publication of these details will not, we hope, be without profit. They should do far more than merely gratify curiosity. They will indicate a danger which many would have avoided had they earlier known its extent. Nearly all the fatal cases have occurred among females, and chiefly women venturing alone in the vast crowd. Of the minor casualties, the majority occurred among men, and unquestionably a great number were due to the disgraceful violence of a number of roughs, who were to be found in the crowd, hustling, charging, and directing rushes through the most crowded places. The records of the City hospitals, with the melancholy array of deaths, bear an obvious moral for the police force of the Corporation. But throughout London the considerable number of accidents seems to show that a thorough revision is needed of the mode of celebrating public rejoicings. The danger of drawing the multitudes who dwell in the metropolis into a given line of cramped thoroughfare at night is now fully exposed. It may be hoped that it will never again be attempted on so large a scale, but that, by the utilization of the large open spaces at Hyde-park, Primrose-hill, Victoria-park, Battersea, and elsewhere, the centres of attraction will be more judiciously scattered, and the dangerous blockade which we have just witnessed avoided in the future. The money spent in decorating the public buildings and offices, ill-placed and unsuited for the purpose, might more usefully have been expended in pyrotechnic displays in the parks.

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A LUNATIC ASYLUM is about to be erected at Haddington, with accommodation for seventy inmates.

# THE LANCET.

LONDON: SATURDAY, APRIL 11, 1863.


OUR young friend, "the tyro in human osteology," is a person very much to be pitied at present: two masters are contending for him. He "cannot serve them both;" and we fear that in "holding to the one" he will be in danger of unduly "despising the other."

This is one of those unpleasant complications so often turning up in human life generally, and in the scientific field in particular, that discussions often take a *personal* character; and as certain strong spirits are always more or less mastering the minds of those around them, we unawares become grouped as partisans round our favourite author or teacher, and that often irrespective of the merits of the case or the truth of his dogmas. Just now in England the light of the illustrious OWEN is in some quarters waning, whilst that of his young and daring rival—HUXLEY—waxes stronger and stronger. As a consequence of this, the loving disciples of the old school cling with pertinacity to the doctrines of their honoured master, whilst the restless and inquiring minds of the great mass of the youth of science are asking, What part have we in OWEN?—what inheritance in the disciple of OKEN? These remarks have been elicited by the newest outpourings of these two streams of anatomical knowledge—one being the concluding lecture of Professor HUXLEY'S present course at the Royal College of Surgeons of England, which was delivered on the 30th ult., and the other being a leading article in a contemporary on the 4th instant; the latter a faint and imperfect echo of the eloquent teachings of Professor OWEN, the former the most masterly discourse anatomists have had the privilege of listening to for many a long day. Still remembering our dear young friend, "Tyro," we hope he will bide his time for a while, and then, if his mind be strong enough to grapple with these subjects, we have no doubt that he will soon be equal to the matter of choosing between plain facts of Nature and pleasant day-dreams of Science—not truly so-called; if not, let him leave it and choose some pursuit requiring a less robust intellect.

The first "preludious touch" to the theory of the segmentation of the skull was given by the great German poet, GOETHE—as we heard the other day from Professor HUXLEY'S lectures; its development was due to OKEN, who gave it a form only modified, not essentially changed, by his eminent English disciples. That the discovery of this natural division of the vertebrate skull into several serial sclerotomes was the initiative of a great and important epoch in comparative anatomy, no one doubts. Professor HUXLEY admits all this with frankness. But he complains of the straining of this point much further than it will go, and consequently the introduction of errors grave enough almost to counterbalance the good done by this assured progress towards the real truth of the matter. The framers of ideal exemplars—beds too short for Nature to stretch herself upon, coverings too narrow for her to wrap herself in—have been, to a man, very dogmatical, and some have not shown themselves to be unlearned in the actual truths of anatomy. So far forth as they have not known the facts, to that very degree have they devised and invented them, never questioning their own mental processes, nor asking are these things so? In all these cases there has been some radical fault in the mental training: such a man—to use the words of BACON—"Knows not what it is to descend into himself, or to call himself to account, nor the pleasure of that *suavissima vita, indies sentire se fieri meliorem*. The good parts he hath he will learn to show to the full, and to use them dexterously, but not much to increase them; the faults he hath he will learn how to hide and colour them, but not much to amend them: like an ill-mower, that mows on still, and never whets his scythe. Whereas with the learned man it fares otherwise, that he doth ever intermix the correction and amendment of his mind with the use and employment thereof." Nevertheless, even in respect to these defects, we are all deeply indebted to the richly furnished but too imaginative minds of those who have thrown such a charm over the study of anatomy. Now that Nature must be taken

> "Naked and alone,
> Before she has a rag of matter on,"

we question whether much of the charm of these studies will not be lost to a certain class of minds. We cannot bear to have the outlines of things depicted with a skeletal harshness; and the verisimilitude of facts often pleases more than the facts themselves. Men of the HUXLEY type—ready to derive GOD-like man from the gorilla, or from the Prince of Darkness himself even, if they thought it to be true science—will never fill the benches of an anatomical theatre like the silver-toned and graceful OWEN. In no case can the teachings of this accomplished biologist be deracinated without a certain amount of agony; and only the pressure of an overwhelming sense of the greater value of embryological research would have forced us to leave the primrose-paths of transcendental speculation. But both the man with "grey hairs here and there upon him" and that ruddy and promising youth "Tyro" will find their account in giving up all that is not severely and desperately true in anatomy. Many of us will henceforth walk with the present Hunterian Professor—walk with him in research, although we may cautiously leave him when he quits the highway and begins to speculate. For let no one suppose that the study of embryology forces any man to believe that we have a filial relationship with any of the beasts that perish, or that have perished: formed on one plan we are; one mode of growth we have; but the Maker of the beasts is the Father and the Friend of man.

There is yet another fault in the disciples of the transcendental school: they are too fond of final causes. This flowery field of natural theology should be fenced off from that in which we are making our homological researches. The mind should reject the intrusion of teleological ideas for the time, just as an anatomist turns his pretty children out of his study that he may be still and calm in his search after truth. Teleology will take care of itself; it needs no study but such as old wives and children are capable of giving to it; and it is a poor thing, when hardly bestead and shut up as to some knotty point of homology, to slip the noose and settle the matter by reference to final purpose. Now it is not we who speak, but BACON. Hear him:—"For the handling of final causes, mixed with

the rest in physical inquiries, hath intercepted the severe and diligent inquiry of all real and physical causes, and given men to stay upon these satisfactory and specious causes, to the great arrest and prejudice of further discovery. For this I find done not only by PLATO, who ever anchoreth on that shore, but by ARISTOTLE, GALEN, and others, which do usually fall upon these flats of discoursing causes. For to say *that the hairs of the eyelids are for a quickset and fence about the sight*," &c., "is well inquired and collected in metaphysique, but in physique they are impertinent."

If our younger readers will keep these thoughts in their minds, they will, we believe, be better able to appreciate the invaluable lectures now appearing in this journal, and the like of which have, perhaps, never before been published—at least, not in this country. Such lectures will never make the present Hunterian Lecturer *popular*, in the gross and common acceptation of the word; nor will he heed that, for he is a reformer and an iconoclast. But, to use the words of CHALMERS, "We greatly mistake, if we think that in those minds of nobler and purer ambition the love of fame is extinguished, because they are willing to forego the bustling attendance and the clamorous applauses of a crowd. They too are intensely set on praise, but it must be such praise as that of ATTICUS, the incense of which, though not copious, is exquisite—that precious aroma which fills, not the general atmosphere, but by which the few and the finer spirits of our race are satisfied. 'They sit on a hill apart.'"

The careful study of these "dry" lectures will give new life to the study of developmental anatomy in England. And yet we must not expect too much at once; for, as BACON says of this patient analytical research, "this same *lumen siccum* doth parch and offend most men's watery and soft natures." He also wittily remarks that "most men are of the taste and stomach of the Israelites in the desert, that would fain have returned '*ad ollas carnium*,' and were weary of manna; which though it were celestial, yet seemed less nutritive and comfortable."

There is one thing to be remarked in Professor HUXLEY'S mode of thinking, and that is, that he never confuses himself; he is never embarrassed with the riches of his subject. He walks with a certain sour serenity through the most flowery fields of the ever-increasing territories of his own favourite science, straight up to the one thing he wants—to that which shall give order to and explain the whole. He is like a marksman who can hit the swallow flying, although the sky be full of birds of every wing. As in geology, so in anatomy, we begin at the end; that which is last discovered is most important to know—ought to have been known first. The primordial facts lie deepest; the simplest and most elementary truths are hardest to come by; but when once unearthed, we hold in our hands that which will enable us to "subdue the earth;" and not the earth only, but the minds of the growing youth of our own race, "and make us heirs of all eternity."

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FOR upwards of twelve months public and professional attention has been earnestly directed to the manufacturing districts of Lancashire in expectation of a great outbreak of fever among the unemployed operatives. Fortunately that outbreak has hitherto been in a great measure averted by the unbounded liberality of the public, and by the vigorous measures which were adopted by the authorities when once the plague had begun there. In the meantime, however, an epidemic of fever has been silently raging in the metropolis, far surpassing in extent any observed during the previous fifteen years. Strange to say, this epidemic has attracted comparatively little notice. It is, therefore, our duty to invite attention to its nature and probable causes.

And, first, as to the proofs of this great increase of fever in London. The Registrar-General's Reports show that the deaths from fever in the metropolis, which in 1860 did not exceed 1392, rose in 1862 to 3635. The cases reported to the Registrar-General as deaths from "typhus," include many examples of diseases which do not strictly belong to any form of fever, and the number of which may be assumed to be tolerably constant from year to year. If it were possible to eliminate these cases, the contrast between the two years would be more striking than appears from the above figures. More accurate information is obtained by referring to the Reports of the London Fever Hospital. In the year 1860, the total number of admissions into the Fever Hospital did not exceed 391, of which only 151 were examples of continued fever. At this time, indeed, serious thoughts were entertained of converting the institution into an hospital for general diseases. But in the year 1862 the number of admissions rose to 2699, or exceeded the largest number of admissions in any previous year of the hospital's history by nearly 1000. The great increase of fever in London has been alluded to in many of the Reports of the Medical Officers of Health. It is obvious that a mortality of 3635 in twelve months must represent an enormous prevalence of fever.

It is a very important point to determine the precise nature of the fever of which this great epidemic has been made up. In investigating the causes of any epidemic of fever, it is essential to take into consideration the nature of the fever in each case,—whether it be typhus, relapsing fever, or the so-called typhoid or enteric fever. It is now known that the circumstances under which these fevers make their appearance are widely different. For sanitary purposes it is therefore to be regretted that in most official reports the several diseases now mentioned are still grouped under the common designations of "continued fever" or "typhus." The epidemic which has been raging in London since the beginning of 1862 has consisted of the true maculated typhus. It is the same fever which, before the labours of the great philanthropist HOWARD, was known as the "gaol fever," and which by many modern writers is spoken of as "Irish typhus." It is the same fever which decimated the ranks of the French and Russian armies in the Crimea, and which is spreading dismay among the ranks of the Federal troops in America. Throughout the epidemic not one instance of relapsing fever has been observed, while in 1862 the number of enteric or typhoid cases did not exceed the average of previous years. These statements are amply borne out by the returns of the Fever Hospital, which constitute the best test of the relative proportions of the different continued fevers prevalent at a given time. These Reports show that the great increase of admissions in 1862 was solely due to typhus. In the year 1858 the typhus admissions did not exceed 15, and during seven months of that year only one case of genuine typhus was admitted. But during the year 1862 the typhus admissions rose to the unprecedented number of 1827, while the number of admissions for enteric fever did not exceed 220, or about the average of the fifteen preceding years. Numerous cases of true

typhus were also observed in most of the general hospitals of the metropolis, where for years it had been an almost unknown disease, and where it exhibited a strong contrast to enteric fever by spreading, in some instances to an alarming extent, among the attendants on the sick and the patients admitted for other diseases. Lastly, there were few of the metropolitan workhouses which escaped its ravages. This epidemic of typhus commenced about the middle of December, 1861, and rapidly spread; it reached its climax in the months of April and May, 1862, and since then the number of cases has gradually declined, although it is still considerable. The deaths from "fever" in London during the first twelve weeks of this year were 680, as compared with 902 during the first twelve weeks of 1862; the admissions for typhus into the Fever Hospital during the first three months of 1863 were 295, as compared with 506 during the first three months of 1862.

The great cause of the origin and propagation of the typhus poison is the protracted overcrowding of human beings in badly-ventilated dwellings. It matters not whether we have to do with gaols, barracks, ships, or the wretched hovels of the poor in large cities, the cause is always the same. "If," says an able writer on fever in the last century, "any person will take the trouble to stand in the sun and look at his own shadow on a white plastered wall, he will easily perceive that his whole body is a smoking dunghill, with a vapour exhaling from every part of it. This vapour is subtle, acrid and offensive to the smell; if retained in the body it becomes morbid; but if re-absorbed, highly deleterious. If a number of persons, therefore, are long confined in any close place, not properly ventilated, so as to inspire and swallow with their spittle the vapours of each other, they must soon feel its bad effects. Bad provisions and gloomy thoughts will add to their misery, and soon breed the *seminium* of a pestilential fever, dangerous not only to themselves, but also to every person who visits them, or even communicates with them at second-hand. Hence it is so frequently bred in gaols, hospitals, ships, camps, and besieged towns. A *seminium* once produced is easily spread by contagion."* The connexion between famine and epidemics of typhus is in this way. One of the most common consequences of destitution from any cause is the congregation of several families in one house, in consequence of their inability to pay their rents, and of the concentration in the large towns of many of the inhabitants of country districts. This was notoriously the case at Preston before the appearance of typhus last autumn. Famine predisposes to typhus by weakening the constitution; but it only produces typhus in so far as it causes overcrowding. It is impossible to define the degree of crowding necessary to produce typhus. Overcrowding, which with defective ventilation, or with none at all, would generate typhus, would be harmless if the surrounding atmosphere were repeatedly renewed.

The circumstances preceding the present epidemic of typhus in London did not differ from those of former epidemics. On this point we cannot do better than quote the observations made by Dr. MURCHISON in his recent work on Fever. "There was no failure of the crops in England, but for some time before there had been great and increasing distress among the poor of London, consequent on the organized system of strikes, the effects of which had been only temporarily averted by the relief from the societies for promoting the short-hour movement. As in 1826, 1836, and 1856, an *artificial* scarcity was the result. In addition to this, the great distress in the provinces caused the poor population of London to be condemned by the arrival of labourers from the country in search of work. It was ascertained that almost all the first cases admitted into the Fever Hospital were male tramps, with no fixed residence, out of employment, and suffering for many weeks from want, and that many of them had only been a few weeks in London; there was no evidence that they had come from infected localities, or imported the fever into London. Only a small proportion of them were Irish, and none had arrived recently from Ireland. Overcrowding, with destitution, appears to have occasioned the epidemic."† In corroboration of these statements it may be added, that during the year 1862 no fewer than thirty-two deaths from sheer starvation were reported as having occurred in London, although it is doubtful if a single death from starvation was noted throughout the length and breadth of Lancashire in the same period. A large number of patients were also admitted into the London Fever Hospital whose sole complaint was exhaustion consequent on want, while almost all the cases of typhus were brought from the most crowded districts of the metropolis, such as St. George's in the East, Lambeth, City of London, and Deptford. It is worthy of remark that Edinburgh and other large towns, which were formerly noted for a greater prevalence of typhus than even London, continue to enjoy a remarkable immunity from it. The non-manufacturing population of Edinburgh, which has not remained exempt from typhus during seasons of *general* famine, is less readily affected by the circumstances which generate *artificial* scarcity in London and some other large towns. Yet in 1826, when Edinburgh was suffering from the effects of failures in building speculations, typhus was far more prevalent there than in London.

* Grant, Essay on the Pestilential Fever of Sydenham. London, 1775.

† Treatise on the Continued Fevers of Great Britain, p. 63. London, 1862.

# Medical Annotations.

"Ne quid nimis."

## THE CHESTER CASE.

IN a leading article last week we ventured to counsel the profession as to the necessity of precautionary discretion in the treatment of female diseases. A remarkable illustration has since been afforded of the practical value of our suggestions. The case of Bromwich *v.* Waters, heard at Chester on the 4th inst. before Mr. Baron Bramwell and a special jury, has among medical trials no parallel. Every resource that unlimited outlay and surpassing ability could command was unsparingly used to fix upon a physician of high professional character and unblemished reputation one of the very foulest charges that ingenious wickedness could by any possibility devise. We refer to the particulars as published at page 427. In this as in other cases, a too credulous benefactress lent fictitious importance to the charges advanced, by permitting her apparent approval to invest with a seeming reputation the miserable impostor of whom a special jury without hesitation has declared her to be the dupe. But, unlike others so practised on, when a verdict exposed the imposition, the gentlewoman, who had left no means untried and spared no outlay to punish an alleged crime, was prompted by her advocate to offer her generous expression of satisfaction at the verdict, and thereby to make her personal atonement for having been rendered an

instrument for inflicting much undeserved anxiety as well as real wrong. We are glad to perceive that this was done in a manner which elicited commendation from the learned judge before whom the case was tried. Dr. Waters, to his infinite credit, had shown no hesitation to accept the challenge, and by complete and uncompromising determination to combat every insinuation, and to demand redress from those instrumental in propagating the calumny. No sooner had the verdict been returned than two actions for slander—in both of which Dr. Waters was plaintiff, and into both of which he had entered with full confidence as to the result—were compromised, by the payment of damages agreed on, and the full satisfaction of costs. It was in the course of one of these that the *amende* we have spoken of was rendered, in which the learned Baron was pleased to express his hearty and entire concurrence.

Dr. Waters has reason to be satisfied with the searching and complete nature of the investigation. Mr. Serjeant Shee, fresh from the Western Circuit, throughout which he had been acting as judge, seemed by this adventitious judicial character to impress on the suit of the plaintiff a foregone conclusion, which required for its rejection the jury to feel complete satisfaction as to the groundless nature of the charge. Dr. Waters has been subjected to a cruel, and what might have proved a humiliating ordeal, had the eloquence of Serjeant Shee in this as in a former case led the jury, in a weak spirit of compromise, to find for the defendant without removing the imputation.

While we congratulate the profession on the result of this shameful trial, we cannot refrain from strongly expressing our disapproval of the course followed by the medical gentlemen called by the plaintiff. We have no hesitation in saying that such a prosecution would never have been brought into a court of justice had medical men not been found ready to come forward and support it; and it must certainly be a matter of surprise, as well as of regret, to any well-constituted mind, that Drs. Lee, Ramsbotham, and Taylor should, by their appearance in the witness-box, have countenanced the groundless charge.

## THE REALMS OF AIR.

THE British Association have been more fortunate than that worthy conclave whose deliberations, so Æsop relates, resulted in a resolution that it was advisable to bell the cat. When two hundred pounds was voted last year for the purpose of completing those eminently valuable but equally perilous experiments in mid-air which Mr. Glaisher had so boldly undertaken, it would have been curious to watch the effect of throwing the dangerous service open to meteorological aspirants; with an injunction that all should not speak at once. We rather doubt whether the response would have been more eager than that which greeted the suggestion to hang a bell on the neck of Grimalkin.

Now the amount voted for these important investigations, so bravely undertaken by Mr. Glaisher, barely represents the cost of the apparatus employed in making the experiments. Of course this was all that could be expected from the Association; but we think it right, in mentioning the results of his recent scientific tour into the realms of air, to especially direct attention to one matter which has been far too lightly esteemed by the scientific world, and of which the world without knows nothing. Balloon ascents undertaken for the purpose of acquiring information as to the conditions which obtain in the higher regions of the air differ widely from those made when a holiday mob is treated to the sight of some intrepid aëronaut making an ordinary ascent. The soaring ambition which induces the meteorologist to go a-questioning strata of the air never before penetrated, and not to be entered except at imminent personal risk, has nothing in common with that showman-spirit which seeks to gratify the lookers-on at the least possible risk to the adventurer.

The interesting account Mr. Glaisher has written of his recent ascent—the first of four which he proposes to make—triumphantly refutes the objections of those cavillers who contended that there was nothing to be gained by the institution of these experiments.

It has been hitherto considered that there is a decrease in temperature of 1° Fahr. for each 300 feet of elevation above the earth's surface. A vast deal of labour and research was expended in coming to this conclusion. It is unnecessary to enumerate the many and important scientific deductions in the working out of which this accepted law of uniform decrease of temperature with increase of elevation has been relied on as accurate.

The results of the experiments made during eight balloon ascents last season were, that when the sky was clear a decline of 1° took place within 100 feet of the earth, while at the height of 30,000 feet a space of fully 1000 feet had to be passed for a change of 1° of temperature; between these limits a gradually increasing space was required for a change of temperature to the same amount; plainly indicating that the theory of a decline of 1° of temperature for every 300 feet of elevation must be abandoned.

The last ascent which Mr. Glaisher made (on March 31st), under very favourable circumstances for minute observation, corroborate the experiments previously made, show that the opinion hitherto held is erroneous, and hence all calculations based on it must also be wrong. On this last trip he ascended to the height of 4¼ miles, and the temperature diminished 50° Fahr., instead of 79°, as it should have done by the old calculation. And this diminution was singularly irregular, being 16½° during the first mile, 7½° during the second mile, 12° in the third, and 14° when mounting from 3 to 4¼ miles of altitude. The observations made during the descent still further corroborated this want of uniformity in variation of temperature. "At the height of 3¼ miles," writes Mr. Glaisher, "Mr. Coxwell said my face was a glowing purple, and afterwards both our faces were very blue." At this height the temperature was 8° Fahr., falling to zero when 4¼ miles was reached. "On descending, Mr. Coxwell, forgetful of the fact of the grapnel having been exposed to a temperature of zero, incautiously took hold of it with his naked hands, and cried out, as in pain, that he was scalded, and he called on me to assist him to drop it. The sensation was exactly that of scalding water."

The discovery above mentioned must necessarily have an important bearing on many meteorological questions, and lead to the reconsideration of many accepted conclusions. Moreover, if the density and refractive power of the aërial medium through which light is transmitted vary with the temperature, there may also be raised some knotty points for the consideration of the astronomer, who thus finds his minute calculations as to the condition of our surrounding atmosphere invalidated and that, in fact, he is

> "Farther off from heaven
> Than when he was a boy."

## HOSPITAL INTERESTS IN THE COMMON COUNCIL.

AT the last meeting of the Common Council, we read that for the second time, at least, Deputy Elliott had placed on the paper of business a motion, that the present site of Bethlehem Hospital being well adapted for an hospital for sick persons, and as the rebuilding of St. Thomas's Hospital offers a favourable opportunity to remove the lunatics in Bethlehem Hospital into the country at comparatively little cost, it is therefore desirable that the governors of those institutions should be invited to negotiate for an exchange of occupation upon equitable terms, having regard to the greatest comfort and advantage of the afflicted of both classes. At present, however, the Common Council appear in no mood to discuss the subject, important though it be; and they passed on to business which, for the time, has to them a more immediate and pressing

interest—namely, the pending and threatened legislation in reference to the Corporation.

## BRIGHTON LYING-IN INSTITUTION.

A VERY judicious move is being made by some benevolent governors of this institution, with the view of making such arrangements as may be necessary for the reception of a limited number of poor married women during their confinement. Mr. Tuke, the governor who moved the resolution, referred to the arguments which have been held in THE LANCET to favour such institutions for the aid of poor women whose labours are liable to be attended with danger or to require more than usual care; and stated that as these views are shared by the medical practitioners of the town, the institution would have their support. At the same time, the demonstrated danger of aggregating lying-in women is held in view; and it is proposed, as far as possible, to accommodate the patients received in separate rooms, or at any rate not to collect them in large wards. This is a very important provision, and we trust that it will be strictly carried out. Recognising the great importance of training, for the service of lying-in women, nurses more experienced and better informed than the majority of those who now ply their vocation ignorantly among the poor, and indeed among the rich, arrangements will be made for establishing a system of training nurses at the institution. The object and general plan discussed deserve medical approbation, and we hope the scheme will be carried out to a successful issue.

## THE FEDERAL SICK.

THE Northern armies are suffering terribly from sickness, notwithstanding the exertions of their able Surgeon-General, Dr. Hammond. A correspondent of the *Dubuque Herald* says that Dr. Russell, of Bowens' Prairie, Linn County Iowa, a surgeon sent by Governor Kirkwood to Vicksburg to look after the Iowa sick and wounded, has returned, and gives a most sickening account of the horrible condition of affairs. He says that there are at least 50,000 sick Federal soldiers in Grant's army, and that they are dying in droves. He says words will fail to paint the terrible suffering of the wounded and diseased. One case he mentions of a Missouri Federal soldier, both of whose legs were broken, he being at the same time afflicted with the dysentery. He lay in the camp *in his filth for eleven days*, without the least attention being paid him until one of the legs had gangrened. Dr. Russell spoke to the surgeon in charge about his case, who brutally replied that he had nothing to do with Missouri troops, and that if *he* (Dr. Russell) wanted to take his legs off he might do it. Dr. Russell says that there are but few medicines, and that, in the utter absence of quinine, the physicians attempt a cure of dysentery, which is everywhere prevalent, with nut-gall, the only approach to a remedy they can procure.

## THE SURGICAL DEPARTMENT OF THE VOLUNTEER ARMY.

IT is difficult to grasp the full significance of the oft-quoted term "horrors of war." An inexperienced looker-on at the mimic fight which raged for three hours over Brighton Downs on Monday last, even after allowing for the absence of shot and shell, would be disposed to appreciate the excitement and glory rather than the horrors of war. It is, in fact, not upon the battle-field that these must be looked for in their intensity; it is rather in that flood of disease which wells up, as it were, wherever large numbers of men are massed together, as though, indeed, the earth resented the unnatural pressure upon one portion of her surface. In the hospital-tent the alternative "aut cita mors aut victoria læta" can find little place.

This portion of campaigning was not represented at Brighton. It would have been hard, indeed, to look upon those 15,000 men devoting themselves with ardour to a contest which from a distance bore all the attributes of reality with anything but feelings of pride and pleasure. Coming nearer, one found that in spite of the exhausting character of the day's service, and the fact that a large number of the men had scarcely had any rest for the preceding thirty hours, they showed little or no signs of fatigue. The reflection would be apt to occur that the *physique* of these Volunteers must be vastly superior to that which is ordinarily to be found in armies; that here, in fact, was "stuff" of which soldiers were very seldom made.

Turning to the accounts which have lately reached us from America, one's perplexity would be increased on reading of armies shattered by disease, and unable to move forward by reason of the vast numbers lying in the hospitals; this, too, be it remembered, occurring to troops fighting in their own country, and within reach of plentiful supplies. It is difficult, indeed, to realize the fact that, in the event of our gallant Volunteer army being called into active service, every nerve would have to be strained, every item of dearly bought experience on the subject of military hygiene employed, to save it from inevitable ruin and destruction.

In the face of the well-merited eulogiums so frequently passed by competent authorities upon the condition and conduct of these troops, this is indeed a melancholy reflection. But it is useful occasionally to call to mind that, although in the present Volunteer force we possess a large body of men more or less trained to the use of the rifle, and the habit of manœuvring to command, its resemblance to a fighting army there ceases, and before it would be in a condition to take the field, a vast gap would have to be filled. It is only just, too, to the army proper, that we should not forget the points of difference; that we should not jump to the conclusion that soldiering, after all, is a very simple matter, which is rather to be deemed an agreeable recreation than a serious occupation of life.

The Volunteer army possesses no staff. As at present constituted, it could not remain in the field *en masse* for twenty-four hours. It has no means of sheltering, feeding, clothing, or warming the men; of transporting them for ever so short a distance, or of tending them in sickness. The few medical officers attached to the regiments are the only evidences of the serious character of the duties which the army might some day be called upon to perform. Under existing circumstances, *they*, the least conspicuous, and, to outward appearances, the least important officers of the whole body, are the only ones who have any really grave and responsible work. Accidents, it is true, are not very common, but a field-day never passes without the occurrence of some few. We venture to say, that, as a rule, adequate provision is not made for such contingencies. The mere presence of a surgeon is of little avail if he be unprovided with the means of assistance to a wounded man, and, speaking generally of the Volunteer service, we insist that there is anything but a just appreciation of this necessity. We are most anxious to call the serious attention of the medical officers to this point, as it is clearly their duty to see that they have the means provided them of rendering efficient aid when the occasion arises. This is a duty of the hour; it is quite independent of the question of the actual employment of the force ever being called for, and it is therefore of moment that, in the time of need, the surgeon should not be found as useless an appendage to the regiment as it is too often the custom of his brother officers in times of peace to consider him.

In addition to this pressing necessity, we conceive that the medical officer is bound in honour, whilst the other members of the service are striving hard to learn their business as soldiers, to acquaint himself, by reference to the various publications upon the subject, with the duties which he might, at a very short notice, be called upon to undertake if the force were called out. He would then be in a position to prevent, by his timely advice, errors of management, which if unchecked would endanger the very existence of the grandest and most remarkable institution of modern times.

The arrangements made at the Brighton Review this year have been of the most complete character, and reflect great credit on the surgeons who gave up their time and employed

their energies in rendering efficient service to the Volunteer cause in the department to which they were attached. Every case of accident was duly provided for. Field hospitals were organized, and reports were collected and forwarded in due military form. A useful precedent has thus been established.

## RUSSELL *VERSUS* ADAMS.

WE have received many letters offering subscriptions to assist in defraying the expenses to which Mr. Adams has been put by the failure of the plaintiff to pay the costs to which he has been perforce subjected in the defence of his character against the disgraceful attack made upon him. The verdict of the jury carried costs, but the plaintiff is penniless, and leaves Mr. Adams to pay the heavy sum incurred in necessary legal expenses. It was believed at first that this would not exceed a few hundred pounds; it is now evident that it will be near a thousand pounds. This is a greater burden than any man should be expected to sustain, when pressing upon his hardly earned professional income. Although Mr. Adams was at first desirous to bear the brunt of the attack, as far as possible, out of his own personal resources, and therefore reluctant to accept the liberal offer of help from his professional brethren, we think now that the expenses are understood to involve so large an amount, it is only fair the sympathy which is universally felt and expressed towards him should assume a substantial form. Pending the formation of a Committee to carry out this object, subscriptions will be received at THE LANCET Office.

# Correspondence.

"Audi alteram partem."

## HOMICIDAL MANIA.

*To the Editor of* THE LANCET.

SIR,—A gunner named Holden, of heretofore fair character, wearing the good-conduct badge of his regiment, on Tuesday, March 31st, deliberately murdered his only child. He does not deny or conceal his guilt; he states that he wishes to be hung, and, by killing his infant, he has spared its young mother—whom he is said to love tenderly—the burden of its support.

This most insane deed has followed immediately upon the execution of Charles Fooks, at Dorchester, and the condemnation to death of Burton, at Chatham. Those who consider the legal test of the responsibility of alleged lunatics to be just and wise, which is founded upon their presumed knowledge of the distinction between right and wrong, will rejoice over the inevitable execution of Holden, as they have done at the sentencing to death of the boy Burton, within sight of whose prison this new and sad tragedy has been enacted.

I do not propose to discuss the question whether the execution of these men be not as just as it is clearly in accordance with the law; my object is only to draw attention to the case of Holden, immediately following that of Burton, as illustrating the uselessness of condemning homicidal monomaniacs to death, if the object be simply the prevention of crime. I believe the experience of all who have studied the symptoms and treatment of mental disease must have led them to the conclusion that the capital punishment of lunatics for murder will never succeed in preventing the commission of such crimes in others. Judicial threatenings, and the certain prospect of a shameful death, have no terrors for the diseased brain. They produce an antagonistic effect; just as the old plan of whipping and chaining maniacs made them more furious—just as the imposition of restraint only rendered them more restless—so the present attempt to put down morbid impulse to kill by the "common-sense impulse" to hang, will tend to make homicide by the insane more common, and cause the sacrifice of many an innocent life, ill-avenged by the execution of its destroyer.

The fear of death did not deter Oxford from shooting at the Queen; but his incarceration as a lunatic afforded a lesson that has effectually prevented a repetition of such an offence. On the other hand, Bellingham's execution did not avail to save the secretary of Sir Robert Peel from the insane fury of McNaughton.

The one thing most repugnant to the criminal lunatic—the only punishment, as it may be called, that can reach him—is the imputation of insanity. The homicide Charles Fooks expressed frequently his dread of being thought crazy, and, therefore, being sent to a lunatic asylum; yet he had no fear of death by his own hand, and walked to the scaffold without a tremor.

Gentleness and kindness, conjoined with firm maintenance of due authority, succeed in asylums in counteracting diseased tendencies to noise, to insult, and to violence. Judicial consideration and indulgence, to clearly proved morbid action of the brain, may equally succeed in checking diseased impulses to murder. Homicidal maniacs should be treated as madmen to be pitied, not as miscreants to be hanged. Death for them has no sting. On the contrary, it offers a premium to their crime. It is certain that although many monomaniacs have committed murder in order to be hanged, no madman ever yet attempted homicide for the purpose of procuring his imprisonment in an asylum for the insane.

Whether evidence as to the insanity of Holden is, or is not, brought forward at his trial, it is evident that his apparent knowledge of the distinction between right and wrong must ensure his conviction and condemnation, as it did that of Fooks and Burton.

If, said a learned judge, in a recent trial for murder, the jury are convinced that the prisoner at the bar knew the consequences of his act, and the distinction between right and wrong—*although he might have some insane delusion*—it was their duty to find him guilty.

At the same time, with curious inconsistency, in the civil courts, we find *delusion* to be taken as the proof of madness; and, in the case of Burton, the judge dwelt upon the absence of proved delusion as an evidence of the prisoner's responsibility, although, whether deluded or not, by the ruling in the former case, he must have been condemned.

I can only conclude by expressing my earnest hope that in the case of Burton—perhaps that of Holden—more merciful counsels will prevail than in that of Charles Fooks. I do not impugn the verdicts of the juries, or the ruling of the judges, but the wisdom of the statute that avowedly condemns lunatics upon a purely legal test. Apart from all questions of special science, ignoring all the so-called theories of "mad doctors," I would venture to urge that it will be found as much for the interests of society, as it is justice to human nature, and consonant with true scientific teaching, to treat such deeds as those of Fooks, Burton, and Holden as the results of disease requiring life-long confinement and treatment, but not as crimes demanding the cruel, and, in such cases, the useless vengeance of the cord.

I am, Sir, your obedient servant,

HARRINGTON TUKE, M.D.

Albemarle-street, Piccadilly, April, 1863.

## ARMY DISPENSERS OF MEDICINES.

*To the Editor of* THE LANCET.

SIR,—With reference to the letter which appeared in your journal of the 14th ult., respecting Army Dispensers of Medicines, permit me to trespass on your valuable space, being anxious to add a few remarks to those of "Pharmaceutist." I believe the three gentlemen referred to were distinctly given to understand by the present Director-General, on accepting an appointment for the third time, and after passing either the Pharmaceutical Society's examination or the Assistant's at the "Hall," for this express purpose, that they would be permanently retained.

After serving at home stations, they were ordered to Canada in December, 1861, and, as no war occurred, they came home again. Four junior dispensers were immediately reduced, who had been recently re-appointed, some of these having nearly five years' service, and in December last three more were suddenly reduced, notwithstanding the Director-General had given his word to the contrary. This conduct contrasts strangely with that of Sir Andrew Smith, K.C.B., and the late Director-General, who were anxious to do everything for the good of the whole department.

Now, Sir, these three gentlemen having served in every quarter of the globe, with nearly six years' service, are thus thrown upon the world, having spent some of the best part of

their lives in their country's service, although they had been promised a warrant making the appointment permanent, and giving them no more than officers of any civil department are justly entitled to, dispensers being the only class of officers possessing no advantages whatever.

Unfortunately, some thirty gentlemen who accepted an engagement for three years' service in India during the mutiny, allowed their engagements to be abruptly broken by the Government before little more than half the time had expired, and accepted very paltry compensation. The authorities have thus learned to treat dispensers like dockyard labourers, taking them on and dismissing them at their pleasure.

Dispensers have been of great service, having educated a class of sergeant-compounders, not from their free-will, but being ordered to do so. Previously fatal mistakes had frequently occurred where no dispenser was stationed. No wonder the whole Medical Department is so dissatisfied with its present head, as little reliance can be placed on his promises.

I am, Sir, your obedient servant,

London, March, 1863. ONE OF THE VICTIMS.

## MEDICAL TRIALS.

### NORTH WALES CIRCUIT.—CHESTER, APRIL 4TH.

(*Before Mr. Baron* BRAMWELL *and a Special Jury.*)

BROMWICH *v.* WATERS.

MR. SERJEANT SHEE (specially retained), Mr. Vaughan Williams, and the Hon. R. Bourke, appeared for the plaintiff; Mr. Welsby, Mr. M'Intyre, and Mr. Giffard appeared for the defendant; Mr. Grove, Q.C., and Mr. Horatio Lloyd watched the case on behalf of other parties interested.

This was an action brought against the defendant for loss of service sustained by the seduction of Mary Walley, a servant, who was formerly in the employ of the plaintiff.

This charge, which was, perhaps, the most extraordinary ever brought before the public, will be best understood by a short summary of the case, as it would be impossible to give the evidence in detail.

Miss Caroline Bromwich, the plaintiff, is a lady of independent fortune residing at Broughton; the defendant, who is more than fifty years of age, and a married man with grown-up children, is a physician, who for the last fifteen years has not only enjoyed a most extensive practice, but has borne the highest possible character in this city. He had been for a long time not only the medical attendant, but the intimate friend of Miss Bromwich, and in February, 1860, he was asked by her to attend Mary Walley, then twenty-six years of age, a servant who had lived with her for fifteen years. He found she was suffering from a complaint, the origin of which it was not easy to trace, but the result to her was constant sickness. He thought it was a bilious attack, and treated her accordingly; but, as she did not get better, in March Miss Bromwich took her for change of air to Llandudno and the Isle of Man. She returned to Chester no better for the change, and again consulted Dr. Waters, complaining of pains in the stomach and back, in consequence of which he examined her in bed; not being satisfied, he requested her to call at his house, when he made another examination of her person, which led him to believe she was suffering from ulceration of the womb, for which he applied caustic, which cannot be used without what is known to the medical profession as a speculum. He continued this treatment at different times up to April, 1861, but before then her complaint had assumed a different character. She was subject to fits of the worst sort, of what was described as cataleptic hysteria, the result, as it was suggested, of the improper treatment of the defendant. Miss Bromwich, feeling the greatest interest in her, again took her for change of air to the Isle of Man, with no better success, for the fits became worse during her stay there. She returned in May, having suffered on her way back from the most serious fit she had ever had, which rendered her insensible for some time. During the month of October following the same treatment was pursued; then came the 9th of November, on which day Mary Walley swore she called upon the doctor, that she was very ill when she arrived there, that the doctor gave her some wine, and that she almost immediately afterwards had a fit and became insensible, and that she remembered nothing more until she came to herself about two hours after, when she found herself lying on the hearthrug in another room. She had been very sick, and returned home in a cab. She continued to consult the doctor from time to time up to the following March, and complained to him that she was growing larger. In April Miss Bromwich determined upon taking her to Malvern. But, as she did not seem to improve, Miss Bromwich wrote to Dr. Waters, to ask whether she should consult any other physician; but, not receiving any answer, she sent her to Dr. Gully, who, after a thorough examination of her person, thought she was suffering from a tumour. On the 26th of July she became suddenly worse, and a child was born.

This was in substance the plaintiff's case.

Mary Walley distinctly swore that, to her knowledge, no man had ever taken indecent liberties with her, but deposed to one equivocal act on the part of the doctor when he was attending her, and to some expressions of an improper character, all of which the doctor swore were untrue. Dr. R. Lee, Dr. Ramsbotham, and Dr. Taylor were called to prove that where there were symptoms of hysteria the use of the speculum, without which caustic cannot be applied under the circumstances alluded to, was improper.

The defendant was called, who swore positively that the act imputed to him was false. He explained his treatment of her case, and admitted she might have called in November, but that he did not remember on what day, although he thought it was the day on which he had sold a pony. This afterwards became most important, because Mary Walley admitted that she was insensible but once in the doctor's house, and that it was only on that occasion she left the house in a cab, and she fixed that day as the 9th of November; and, assuming that what she said must have taken place on that day to be true, the child, which was born on the 26th July following, was born just three weeks short of the ordinary time of gestation, which was admitted by the doctors on both sides to be quite possible. The servants, however, perfectly remembered Mary Walley coming in November to see the doctor, that he was engaged, and that, although he might have seen her for a few minutes, he soon afterwards went out; that they saw Mary Walley, who was very ill, but that she never was insensible; that they got a glass of wine to give her from Mrs. Waters, after which she was very sick, and that they got a cab for her, in which she went away; and that she was gone before the doctor returned. The nurserymaid remembered going on that day with the doctor and his children to the paddock where the pony was kept, so that they might have a ride upon it before it was sold. The lady who bought the pony, and entered the amount in her account-book, proved that the day in question was the 29th of November, which was further corroborated by other curious evidence. Therefore, assuming that the day when Mary Walley was sick and left in a cab was the 29th of November, and that she was mistaken about the day, though not as to what occurred, the child ought not, if it had gone the full period of gestation, to have been born before September. Evidence was called to impugn the general character of Mary Walley; it was sought to be shown that she had been on familiar terms with one Joe Smith, and a boy named Bill Boddy, of the age of fourteen, and they in turn were called to swear it was untrue.

Dr. Simpson, the eminent physician and professor of midwifery in Edinburgh, was called to prove that the treatment of the case by Dr. Waters was a proper one. Dr. Keiller and Dr. Fyfe gave evidence to the same effect.

Serjeant SHEE replied upon the whole case in a most eloquent speech, which lasted two hours and a half.

It would be impossible within reasonable limits to do justice to the summing up of the learned judge. He said no one could over-estimate the importance to the parties of the issue to be decided. To the defendant it was almost life or death. It was of the gravest importance to Mary Walley also. As far as Miss Bromwich was concerned, nothing would have induced her to expend such a vast sum in litigation had she not been convinced of the truth and chastity of the girl whom she had treated more as a friend than a servant, and believed that she had been grievously wronged. After commenting upon all the facts, he said the case for the plaintiff entirely depended upon the oath of Mary Walley, corroborated, no doubt, by one curious feature, which was that throughout the whole time of her pregnancy she had always allowed herself to be examined, and had acted as if she thought such a thing was impossible.

The jury, after some deliberation, found a verdict for the defendant, which was received with great cheering.

WATERS *v.* BROMWICH.—(S.J.)—SLANDER.

This was an action for slander against Miss Emily Brom-

wich, arising out of the previous case. The plaintiff's case having been proved, it was proposed by the defendant that a juror should be withdrawn, upon which his lordship remarked, "This case was most satisfactorily investigated yesterday, and if I were the plaintiff's counsel, I certainly would not permit him to consent to the withdrawal of a juror." A verdict (by consent) was then taken for the plaintiff, damages 40*s.* and costs. His lordship remarked, "I think it is most correct for the defendant to express her satisfaction with the jury's decision yesterday, in which I most heartily and entirely concur."

WATERS *v.* POTTS.—(S.J.)—SLANDER.

This was a similar case. In consequence of the absence of a witness for the plaintiff, and of the denial of the utterance of the words used by the defendant, it was agreed to withdraw a juror, which was accordingly done.

*** It is satisfactory to know that the jury were unanimous in the first case. The brief delay in giving the verdict arose from the fact that originally there was one dissentient. Eleven of the jury were in favour of Dr. Waters in five minutes after the judge had concluded summing up. The verdict has obviously given unmixed satisfaction in the city of Chester, and to the whole medical profession. The statement of the judge that "the verdict had his hearty and entire concurrence" is an important testimony. We understand that the costs of the first case amounted to more than £1500 out of pocket for the plaintiff before it went into court, and the total costs to near £3000. Had Dr. Waters been a physician of less eminence, or unprovided with the means to procure the most able legal assistance, he might have failed to prove his innocence. And, after gaining his verdict, he might even now be crushed by the expenses, if, as in the cases of Rich *v.* Pierpoint, and Russell *v.* Adams, his accusers were persons of straw unable to pay the costs to which they had put him.—ED. L.

## HOME CIRCUIT.—KINGSTON, APRIL 2ND.

(*Before Mr. Justice* WIGHTMAN *and a Common Jury.*)

WEISS *v.* M'KENZIE.

This was an action to recover £35 for commission for procuring the defendant a partnership in a medical business, and the circumstances were somewhat peculiar.

Mr. Hawkins, Q.C., and Mr. Day were for the plaintiff; and Mr. Serjeant Ballantine and Mr. Watkin Williams for the defendant.

The plaintiff in this action was a person named Martin Weiss, a member of the Jewish persuasion, who carries on the business of a medical agency, and also a governess's institution and scholastic agency, in King William-street, and who styles himself "Dr. Weiss" upon a diploma of licentiate of medicine granted by the Dublin University. The defendant is Mr. Morel M'Kenzie, who was formerly a medical officer of the London Hospital; and the action was brought to recover the sum stated as commission for procuring him a partnership with a medical gentleman named Margetson, in the course of last year. From the evidence of the plaintiff, it appeared that he had inserted certain advertisements in THE LANCET, and the defendant called upon him, and expressed a wish to become a partner in a good medical practice, and that he told him Mr. Margetson was desirous to have a partner, and the sum required would be £700. He said that he at the same time showed the defendant a circular, one of the terms of which was that in all cases where he was the means of procuring either a vendor or a purchaser of a partnership or a business, he expected to be paid five per cent. commission by both, and that, although the defendant objected at first, he ultimately agreed to these terms. An arrangement having been completed between the defendant and Mr. Margetson, the latter, it appeared, paid the plaintiff £35 as his commission, but the defendant repudiated the alleged agreement, and the present action was brought to recover the amount. The plaintiff, who was called to prove the above facts, was subjected to a severe cross-examination by Mr. Serjeant Ballantine, in the course of which he admitted that at the last Guildford assizes an action was brought against him by a young lady for whom he had sold a governess's institution, to recover back a sum of £60, which she alleged had been obtained from her by fraud, and that she obtained a verdict, and he had been compelled to repay the money. It also appeared that the "agencies" referred to were carried on in the name of Weiss and Co., but he said the "Co." had left the concern a year and a half ago, and the Weiss and Co. now all centred in his own person.

Mr. Serjeant Ballantine, in his address to the jury for the defendant, characterized the action as an impudent attempt to extort money from the defendant, who, he said, was a gentleman of eminence in his profession, and a man of great respectability, and who would never have thought of resisting such a claim if there had been the slightest foundation for it.

The defendant was then examined, and he denied in the most positive manner that the plaintiff ever called his attention to the circular alluded to, or that anything was said about his having to pay him a commission of five per cent., and said that he did not see the circular until after he had concluded the arrangement with Mr. Margetson, and then the defendant sent him one in a letter. He also stated that when the plaintiff made this claim upon him he at once repudiated his liability, and he pressed him to pay him, and said he should be sorry to be compelled to bring an action against such a distinguished member of the medical profession (a laugh).

Mr. Orridge and Mr. Bowman were in court on the part of the defence, but were not called.

Mr. Justice Wightman was about to sum up, when the jury interposed, and said they were all of opinion that it was unnecessary for him to do so, as they were unanimous in returning a verdict for the defendant.

## SHERIFFS' COURT, RED LION SQUARE.

JOHNS *v.* BARKER.

On the 2nd inst. an action was brought in the Sheriffs' Court, Red Lion-square, by a person named Johns, against Samuel Barker, alias Dr. de Roos. The statement made by the plaintiff's counsel was that Johns saw an advertisement in the newspaper from Dr. de Roos purporting to cure certain diseases, and that Johns accordingly went to consult him, believing him to be a duly qualified medical man. He paid a guinea, and received a bottle of medicine, and he subsequently wrote to the defendant, who in reply demanded the further sum of £5, which was sent, and more medicine was forwarded. According to the statement of the plaintiff, the medicine did him no good, but he became worse after taking it, and he eventually went to a medical man in his neighbourhood and recovered his health. The defendant Barker, or De Roos, did not appear, but allowed judgment to go by default, and the present inquiry was to assess the damages. The Under-Sheriff (Mr. Burchell), instructed the jury that they must find for the plaintiff, and they accordingly returned a verdict for £6 1*s.*, being the whole sum paid by the plaintiff to the defendant.

## MEDICAL PROVIDENT ASSOCIATION.

AN influential meeting of medical practitioners was held at Cheltenham, on the 31st ult., Dr. Abercrombie in the chair. The following resolutions were passed unanimously:—

"That the proposition for the formation of a Medical Provident Association is one entitled to the best consideration of the profession.

"That the editors of the medical journals be requested kindly to give publicity to the following questions, and that individual practitioners be requested to reply to them.

"1. Do you think such an institution desirable for the profession generally?

"2. Should you be inclined to become a subscriber to it?

"3. What has been, in weeks, your own annual average of sickness, sufficiently severe to disable you from practice?"

Mr. R. B. Carter, of Stroud, Gloucestershire, has kindly offered to receive and arrange the answers, with a view to ulterior proceedings.

FIELD HOSPITALS ON BRIGHTON DOWNS ON EASTER MONDAY.—The medical officers attached to the local corps organized a complete and efficient medical department for service on the occasion of the review and sham fight of the Volunteers at Brighton on Easter Monday. There were two field hospitals established on the Downs. We regret to say that there were several casualties, the most serious being Corporal Harding, fracture of the left thigh-bone, and Corporal Cox, severely burnt, both men belonging to the London Irish corps. The other accidents were of a minor character.

# Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen passed their Primary Examinations in Anatomy and Physiology at a meeting of the Court of Examiners on the 7th inst., and, when eligible, will be admitted to the Pass Examination :—

Adams, J. E., London Hospital.
Armstrong, E. J., Middlesex Hospital.
Appleby, F. H., University College Hospital.
Bertin, H. C., St. Mary's Hospital.
Brewer, A. H., St. Bartholomew's Hospital.
Brewer, H. M., St. Bartholomew's Hospital.
Cavafy, John, St. George's Hospital.
Clothier, Henry, University College Hospital.
Craigie, J. H., London Hospital.
Cullingworth, C. J., Leeds.
Daglish, R. R., Guy's Hospital.
Edgelow, George, St. George's Hospital.
Edgelow, Thomas, St. George's Hospital.
Ensor, Alfred, University College Hospital.
Fisher, J. M., Hull.
Foster, C. W. E., Leeds.
Grewcock, George, University College Hospital.
Hamlyn, W. T. B., St. Mary's Hospital.
Jones, J. W., Charing-cross Hospital.
Knott, W. P., Guy's Hospital.
Langworthy, G. V., St. Bartholomew's Hospital.
Lloyd, John, Birmingham.
Mackey, Edward, Birmingham.
Moorhead, Joseph, Belfast.
Powne, R. L., St. Bartholomew's Hospital.
Shorto, W. B., Charing-cross Hospital.
Snape, Joseph, King's College Hospital.
Turner, E. F., Guy's Hospital.
Wood, M. A., King's College Hospital.

The following gentlemen passed their Primary Examinations on the 8th inst. :—

Barraclough, R. W. S., Guy's Hospital.
Bellew, Edward, St. Thomas's Hospital.
Bond, Thomas, King's College Hospital.
Brockman, E. F., St. George's Hospital.
Cribb, Henry, Middlesex Hospital.
Fothergill, T. P., King's College Hospital.
Freeman, A. J., St. Thomas's Hospital.
Griffiths, Griffith, University College Hospital.
Grimes, John, King's College Hospital.
Heygate, W. N., St. Thomas's Hospital.
Hayward, J. W., Guy's Hospital.
Hooper, Marshall, University College Hospital.
King, Robert, Middlesex Hospital.
Leigh, William, St. George's Hospital.
Lower, N. H., Guy's Hospital.
Mackenzie, G. W., London Hospital.
Marshall, F. J., St. Mary's Hospital.
Masser, H. C. P., Westminster Hospital.
Pearse, G. E. L., Westminster Hospital.
Powdrell, John, St. Bartholomew's Hospital.
Powell, Llewellyn, St. Bartholomew's Hospital.
Rayner, Henry, St. Thomas's Hospital.
Reed, W. H., St. Thomas's Hospital.
Richards, F. W., St. Bartholomew's Hospital.
Roberts, E. C., Guy's Hospital.
Shaw, T. C., King's College Hospital.
Siddall, J. B., St. Thomas's Hospital.
Smith, Francis, St. Thomas's Hospital.
Snow, W. V., University College Hospital.
Symonds, W. N., Westminster Hospital.
Wadd, F. J., St. Thomas's Hospital.
Willson, Henry, Charing-Cross Hospital.

The following gentlemen passed their Primary Examinations on the 9th inst. :—

Bennett, T. G., St. Bartholomew's Hospital.
Buckle, W. T., King's College Hospital.
Carpenter, Edward, St. Thomas's Hospital.
Cowen, Philip, St. Thomas's Hospital.
Eager, Reginald, Guy's Hospital.
Earle, R. C., Guy's Hospital.
Gimson, T. S., St. Bartholomew's Hospital.
Gooding, Ralph, King's College Hospital.
Green, K. S., Guy's Hospital.
Grellet, C. J., St. Bartholomew's Hospital.
Hawkins, F. W., London Hospital.
Howard, Frank, University College Hospital.
Jackson, George, University College Hospital.
Jones, A. O., St. Thomas's Hospital.
Kinsey, R. H., St. Bartholomew's Hospital.
Knott, T. H., Guy's Hospital.
Manser, Frederick, Guy's Hospital.
Maturin, Henry, St. Bartholomew's Hospital.
Maundrell, Edward, University College Hospital.
Mayou, M. J., Guy's Hospital.
Plowman, Richard, St. Thomas's Hospital.
Raven, T. F., St. Bartholomew's Hospital.
Richards, George, University College Hospital.
Steele, H. O., Guy's Hospital.
Sturton, H. W. S., St. Thomas's Hospital.
Taylor, Hugh, St. Bartholomew's Hospital.
Taylor, Arthur, Guy's Hospital.
Viant, Henry, Guy's Hospital.
Wagstaffe, W. W., St. Thomas's Hospital.
Wilford, J. G. F., Guy's Hospital.
Wilmot, A. E., Guy's Hospital.

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on the 2nd inst. :—

Bateman, William Adolphus Frederick, Richmond, Surrey.
Gould, Horatio Bate, Gosport, Hants.
Purvis, John Prior, Blackheath, Kent.
Thomas, George Jenkyn, Haverfordwest.
Trevan, Matthew, St. Bartholomew's Hospital.
Wicksteed, Francis William Slow, St. Bartholomew's Hospital.

The following gentlemen also on the same day passed their first examination:—

Ashton, John Henry, St. Bartholomew's Hospital.
Cook, Alfred Square, St. Bartholomew's Hospital.
Gooding, Ralph, King's College.
Martin, Paulin, St. Bartholomew's Hospital.
Shaw, Thomas Claye, King's College.
Taylor, James Mare, Queen's College, Birmingham.

A CINCHONA PLANTATION has been successfully formed on the northern hills of the island of Trinidad.

CHRIST'S HOSPITAL.—In consequence of the sickness now prevalent amongst the boys of this school, the usual Spital Sermons on Easter Monday and Tuesday were not preached.

SMALL-POX AND MEASLES IN LONDON.—There were forty-five fatal cases of small-pox in London last week, and fifty-one of measles. Both of these diseases are prevalent in the district of St. John's, Westminster.

PUBLIC CARRIAGES FOR THE SICK.—The Visiting Committee of the City of London Union has recommended that carriages for the conveyance of persons labouring under contagious diseases be lined with American cloth.

FATALITY OF CHOLERA IN MALABAR.—The mortality among such of the natives as were treated in hospital on the outbreak of cholera in 1859-60 was 66 per cent., that of cases registered throughout the district no less than 23 per cent.

NETLEY HOSPITAL.—With the exception of a few of the officers and non-commissioned officers connected with the staff, the entire invalid establishment at Chatham has been transferred to the new military hospital at Netley.

TYPHUS FEVER AMONG THE SURGEONS AT THE GENERAL HOSPITAL AT VIENNA.—No less than six assistant-physicians, and a great number of ward assistants, are suffering from the typhus fever which has been raging in the hospital.

A NEW INSTRUMENT FOR THE OCULAR EXAMINATION OF STRICTURES OF THE URETHRA has been invented by M. Desormeaux, surgeon to the Necker Hospital at Paris, on the principle of the laryngoscope. It may also be used to inspect the nasal fossæ, the pharynx, or any other deep canal.

A SCALDING VAPOUR BATH.—On Monday last Anne Maria Balmforth, aged seventeen, died from the effect of a vapour bath improperly given. A heated brick was placed in boiling water, the vapour from which so scalded her that she died in a few hours in great agony.

CAMBRIDGE: TANCRED STUDENTSHIP OF PHYSIC.—There will be at least one vacant studentship at Whitsuntide. The annual stipend is £100, and may be held until the degree of Bachelor of Medicine is attained, and for three years afterwards.

MICROSCOPICAL SOCIETY.—A soirée was given by this Society on Wednesday evening at King's College, and attended by a large number of ladies and gentlemen. Some two or three hundred microscopes were contributed by various gentlemen, including all the eminent makers, and the objects exhibited were of the most multifarious character. The ova of the salmon, together with many newly hatched, were exhibited by Mr. Frank Buckland.

THE SOUTHAMPTON MEDICAL SOCIETY held its monthly meeting on the 7th ult., when Dr. J. Stevenson Buahnan, of Laverstock House Asylum, read a discourse "On the Proper Limits between the Empirical, the Rational, and the Empirico-Rational in Medicine." He described the controversy as existing from the earliest period of Medicine, and recapitulated the summary which Celsus had given; and after a concise and luminous description of empiricism as depending upon observation of single cases, which applied the same rule to all, and Rationalism, which, from largely extended observation, educed the laws by which the treatment of disease ought to be governed, he contended that the real science of Medicine is in therapeutics, which includes the rules and principles applicable to the use of all remedial agents; that this science had by no means made great progress, so that the empirical in Medicine far exceeded the rational; and that this state of things was

likely to continue for a long period. The address was well received, and secured to Dr. Bushnan the cordial approval of the Society.

LARGE SCROTAL TUMOUR.—Dr. Cleveland, of Malabar, has reported the removal of a large scrotal tumour from a native of the Laccadive Islands, the weight being seventy-eight pounds. The man was a strumous subject, and died on the ninth day after the operation from an attack of diarrhœa.

HEALTH OF LONDON DURING THE WEEK ENDING SATURDAY, APRIL 4.—In the week that ended last Saturday the deaths in London were 1475. There were 45 fatal cases of small-pox recorded in the week, and 51 of measles.

The births were—boys, 995; girls, 1017.

## MEDICAL VACANCIES.

Addenbrooke's Hospital, Cambridge—Physician, vice Dr. Haviland, resigned.
Birmingham General Dispensary—Junior Resident Surgeon.
Coventry Provident Dispensary—Resident Dispenser.
Metropolitan Dispensary and Charitable Fund—Surgeon, vice Mr. L. Holden, resigned.
Morpeth Dispensary—House-Surgeon.
Royal Asylum of St. Ann's Society, Brixton Hill—Surgeon.
St. Marylebone General Dispensary—Resident Medical Officer.
South Staffordshire General Hospital—Assistant House-Surgeon.
South Devon and East Cornwall Hospital—Resident House-Surgeon and Apothecary.
Tower Hamlets Dispensary—Surgeon, vice Mr. R. Wilson, deceased.
West Hertfordshire Infirmary—House-Surgeon.

## MEDICAL APPOINTMENTS.

B. BARCLAY, M.D., has been elected a Member of the Natural History Society of Glasgow.

S. BOOTH, junr., M.D., late Resident House-Surgeon to the Pendleton and Salford Royal Hospital and Dispensary, has been elected Medical Officer and Public Vaccinator for the South Salford District, Manchester, vice M. O. Larmuth, M.R.C.S.E., promoted.

J. CANDY, M.D., to be Medical Officer and Public Vaccinator for the parish of Alstonfield and the Workhouse, vice N. B. Twigge, M.R.C.S.E., whose appointment has expired.

J. DARWEN, M.R.C.S.E., has been re-elected Medical Officer and Public Vaccinator for District No. 6 of the Birmingham Union.

W. EDWARDS, Member of the Pharmaceutical Society, has been appointed Dispenser to the Salop Infirmary, Shrewsbury, vice W. A. Moses, resigned.

E. GODDARD, M.R.C.S.E., Surgeon to the West Herts Infirmary, Hemel Hempstead, has been elected Medical Officer and Public Vaccinator for District No. 1, and the Workhouse, of the Leominster Union, Herefordshire, vice H. V. James, M.R.C.S.E., resigned.

N. GRATTAN, L.R.C.P. & S.Ed., has been appointed Resident Apothecary to the Cork South Charitable Infirmary and County Hospital, vice Richard Callaghan, L.R.C.P.Ed., appointed Medical Officer to the Cork Dispensary District.

T. L. GREAVES, L.S.A., has been re-appointed Medical Officer to the Corby District of the Kettering Union, Northamptonshire.

R. GRIFFITH, M.R.C.S.E., has been elected Medical Officer for the Abergele District of the St. Asaph Union.

E. D. HACON, F.R.C.S.E., has been appointed Surgeon to the Stamford Hill, Stoke Newington, &c., Dispensary, vice Toulmin, appointed Consulting-Surgeon.

W. HARVEY, F.R.C.S.E., has been elected a Member of the Royal Institution of Great Britain.

C. HARWOOD, M.D., has been elected Medical Officer to the Workhouse of the Shardlow Union, Derbyshire, and Medical Officer and Public Vaccinator for the Shardlow District of the same Union, vice M. T. Jones, deceased.

G. HAWKESFORD, M.R.C.S.E., has been re-elected Medical Officer and Public Vaccinator for District No. 5 of the Birmingham Union.

J. HINTON, M.R.C.S.E., has been elected Surgeon-Aurist to Guy's Hospital.

W. HOARE, M.R.C.S.E., has been re-elected Medical Officer and Public Vaccinator for District No. 2 of the Birmingham Union.

G. HOTHER, M.R.C.S.E., has been elected Medical Officer for District No. 1, and the Workhouse, of the West Firle Union, Sussex, vice A. J. Doyle, M.R.C.S.E., deceased.

E. KNOWLES, M.R.C.S.E., has been re-elected Medical Officer and Public Vaccinator for District No. 5 of the Chesterton Union, Cambridgeshire, for one year, from the 25th ultimo.

J. LOGAN, M.D., has been re-appointed Medical Officer for the No. 2 District of the Kettering Union, Northamptonshire.

F. X. F. MACCABE, L.K.Q.C.P., has been elected Medical Officer and Public Vaccinator for the Kilmakevogue Dispensary District, Waterford Union, vice Dr. J. Fitzpatrick, resigned.

T. MACKLEY, L.S.A., has been re-appointed Medical Officer for the Wilsden District of the North Bierley Union.

G. PATERSON, M.D., Deputy-Commissioner in Lunacy for Scotland, has been admitted a Fellow of the Society of Antiquaries of Scotland.

W. S. PLAYFAIR, M.D., has been appointed one of the Physicians to the Infirmary for Consumption and Diseases of the Chest, Margaret-street, Cavendish-square.

J. R. RUSSELL, M.D., has been admitted a Member of the Royal Institution of Great Britain.

G. W. SMITH, L.F.P.S. Glas., has been appointed Medical Officer for the Parish of Kirkmichael, in the County of Banff, vice Alexander Creyk, L.R.C.S. Ed., resigned.

C. SODEN, M.D., has been elected Medical Officer for the Rowan Dispensary District of the Mohill Union, County Leitrim, vice J. Wilson, M.D., appointed to the Drumshambo Dispensary District of the Carrick-on-Shannon Union.

C. R. SUCKLING, M.D., has been elected Medical Officer and Public Vaccinator for District No. 3 of the Birmingham Union, vice A. Hill, M.D., whose term of office has expired.

C. R. SUFFIELD, L.R.C.P., has been elected Medical Officer and Public Vaccinator for District No. 1 of the Birmingham Union, vice W. M. Richards, M.R.C.S.E., whose term of office has expired.

E. S. THOMPSON, M.D., has been appointed Assistant-Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

F. J. TOULMIN, F.R.C.S.E., has been appointed Consulting-Surgeon to the Stamford Hill, Stoke Newington, &c., Dispensary, vice W. Kingdon, F.R.C.S.E., deceased.

E. WHITE, M.R.C.S.E., has been re-elected Medical Officer and Public Vaccinator for District No. 4 of the Birmingham Union.

J. WILSON, M.D., has been appointed Medical Officer for the Drumshambo Dispensary District of Carrick-on-Shannon Union.

W. YOUNG, M.D., has been elected a Member of the Natural History Society of Glasgow.

## MILITARY AND NAVAL MEDICAL APPOINTMENTS.

T. S. BARRY, Assist.-Surg. 96th Foot, has been appointed Staff Assist.-Surg., vice R. W. Jackson, who exchanges.

E. BROCK, M.R.C.S.E., Staff Assist.-Surg., has been appointed Assist.-Surg. 1st Foot, vice J. A. Fitzpatrick, appointed to the 1st Dragoon Guards.

W. H. CRUICK, L.R.C.S.I., Surgeon R.N., 30th Jan. 1863, has been appointed to the "Alecto."

D. FINDLAYS, M.D., Surgeon R.N., 4th Dec. 1858, has been appointed to the "Meander" (additional).

J. A. FITZPATRICK, L.K.Q.C.P.I., Assist.-Surg. 1st Foot, has been appointed to the 1st Dragoon Guards, vice M'Sheehy, M.D., appointed to the Staff.

H. P. GREGORY, L.R.C.S.I., Assist.-Surg. 81st Foot, has been appointed Staff Assist.-Surg., vice W. H. Jones, M.D., deceased.

R. W. JACKSON, Staff Assist.-Surg., has been appointed Assist.-Surg. 96th Foot, vice T. S. Barry, who exchanges.

E. L. M'SHEEHY, M.D., Assist.-Surg. 1st Dragoon Guards, has been appointed Staff Assist.-Surg., vice E. Brock, appointed to 1st Foot.

J. C. PENNY, M.D., Indian Service, has been transferred from Madhopore to Lahore, to officiate for Dr. Farquhar, as a temporary arrangement.

H. H. SMITH, M.D., Surgeon R.N., 10th May, 1856, has been appointed to the "Meander" (additional).

W. R. WALL, L.K.Q.C.P.I., Assist.-Surg. 18th Hussars, has been appointed Assist. Surg. 81st Foot, vice H. P. Gregory, appointed to the Staff.

J. H. WRIGHT, M.R.C.S.E., has been appointed Assist.-Surg. 6th West York Militia, vice Hunter, resigned.

# Medical Diary of the Week.

**MONDAY, APRIL 13.....**

LOCK HOSPITAL, Dean-street, Soho.—Clinical Demonstrations and Operations, 1 P.M.
ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM.—Operations, 1½ P.M.
METROPOLITAN FREE HOSPITAL. — Operations, 2 P.M.
MEDICAL SOCIETY OF LONDON.—8½ P.M. Mr. Gay, "On Intestinal Stricture."

**TUESDAY, APRIL 14 ...**

GUY'S HOSPITAL.—Operations, 1½ P.M.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
ROYAL INSTITUTION. — 3 P.M. Prof. Marshall, "On Animal Mechanics."
ETHNOLOGICAL SOCIETY. — 8 P.M. Mr. J. Crawfurd, "On the Antiquity of Man."
ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON.—8½ P.M. Mr. Henry Thompson, "On Treatment of severe Stricture of the Urethra by Gradual Distension at a Single Sitting."—Dr. H. Weber, "On the Pathology of Crura Cerebri."

**WEDNESDAY, APRIL 15**

MIDDLESEX HOSPITAL.—Operations, 1 P.M.
ST. MARY'S HOSPITAL.—Operations, 1 P.M.
UNIVERSITY COLLEGE HOSPITAL. — Operations 2 P.M.

**THURSDAY, APRIL 16...**

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL. — Operations, 1 P.M.
LONDON HOSPITAL.—Operations, 1½ P.M.
ROYAL FREE HOSPITAL.—Operations, 1½ P.M.
GREAT NORTHERN HOSPITAL, KING'S CROSS.—Operations, 2 P.M.
LONDON SURGICAL HOME.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL. — Operations, 2 P.M.
ROYAL INSTITUTION. — 3 P.M. Professor D. T. Ansted, "On the Relations of Geology with Allied Sciences."
CHEMICAL SOCIETY.—8 P.M. Messrs. W. H. Perkin and A. H. Church: "Derivatives of Hophthylamine."
HARVEIAN SOCIETY. — 8 P.M. Dr. Cock, "On Rickets, and the Connexion of Laryngismus Stridulus, or False Croup, with that Disease."

**FRIDAY, APRIL 17 .....**

WESTMINSTER OPHTHALMIC HOSPITAL. — Operations, 1½ P.M.
ROYAL INSTITUTION.—3 P.M. Mr. Frank Buckland, "On the Culture of Fish."
WESTERN MEDICAL AND SURGICAL SOCIETY OF LONDON.—8 P.M. Practical Evening for the Narration of Cases and the Exhibition of Specimens.

**SATURDAY, APRIL 18**

ST. THOMAS'S HOSPITAL.—Operations, 1 P.M.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M.
KING'S COLLEGE HOSPITAL.—Operations, 1½ P.M.
CHARING-CROSS HOSPITAL.—Operations, 2 P.M.
ROYAL INSTITUTION. — 3 P.M. Prof. Max Müller, "On the Science of Language."
METROPOLITAN ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—7½ P.M.

# To Correspondents.

THE PROPOSED MARKET IN LEICESTER-SQUARE.

THE promoters of this scheme have printed and circulated what they term a "reply" to an article which appeared in THE LANCET of the 14th ultimo. We shall not stop to inquire whether the intended market be merely a commercial speculation, or whether its promoters "have been actuated by a sense of the public requirement." They have not controverted a single fact which has been advanced by us. Our opposition to the scheme was founded on the following grounds:—First, that Leicester-square is an open space, and that it would be injurious to the health of the neighbourhood to fill that open space with buildings constituting a market. Secondly, that if a new market were really necessary for the West-end, which, however, we deny, Newport market, in the immediate neighbourhood, might be so improved and extended as to supply the presumed want. This, too, be it mentioned, not by adding buildings to an overcrowded neighbourhood, but by the removal of many nuisances which are inimical to the health of the locality. We take our stand upon these grounds, and upon these alone should be content "to leave the project to the consideration and common sense of all thinking men." But we go further than this. We not only contend that a retail market for the West-end is unnecessary, but that it would not be supported, and would prove commercially a failure. Where is there a retail market in London that is prosperous? Shall we instance Shepherd's market, or Oxford market, or Newport market, or Farringdon market, or shall we call up from the past the wretched ghost of the defunct Hungerford market, with its few periwinkle stalls, its saloons, and its penny ices? Leadenhall, Covent-garden, Newgate, and Billingsgate owe all their importance to the fact of their being wholesale and not retail markets. Take away the wholesale element, and they will dwindle into the condition of the retail markets in the metropolis. The fact is, that in a metropolis like London, retail markets are not required by the "necessities of the public." There is "competition" enough without them. The great districts of Paddington, Bayswater, Camden-town, Kingsland, Lambeth, and other populous suburbs have no retail market. Is the spirit of competition dead in these districts? Let the promoters of the Leicester-square market answer these questions, and not attempt to mislead the public by appeals to prejudices, and by the advocacy of *private* over public benefit. If they be so certain that a Committee of the House of Commons will be convinced by the evidence which they can adduce in favour of private over public interests, what necessity was there for them to reply to the objections which we urged against their scheme in the cause of public health? We have laboured under neither "a misconception of facts, nor a grave misapprehension as to the advantage or the necessity of a market at the West-end." If the promoters be desirous of showing that they are "actuated by a sense of the public requirements," if they really be philanthropists and not mere speculators, they have a fine opportunity of exerting their energies in the cause of the public health and "convenience" by directing their attention to Newport market. Guardians of the public health, we merely perform a manifest duty in raising our voice against an unwarrantable attempt to sacrifice a great public space to the aims of a commercial company.

THE letter of *Dr. Braxton Hicks* is postponed until next week.

TREATMENT OF PSORIASIS INVETERATA.

*To the Editor of* THE LANCET.

SIR,—In answer to your correspondent, Mr. Boyd, respecting the treatment of psoriasis, I may state that two of my patients have derived most decided benefit from the use of a weak ointment of the biniodide of mercury, eight to twelve grains to the ounce of lard. I experimented on one leg with pitch, liquor carbonis detergens, alkaline ointments, calomel ointment, rubbed over the parts with nitrate of silver, as recommended by Graves, and came, along with my patient, to the conclusion that the red ointment was the most successful. Of course its strength must be suited to the case. The scales began gradually to come off, leaving a reddish mark, which also disappeared under its continued use. When left off for two or three days, the benefit became more obvious. The internal treatment consisted of biniodide of mercury, one grain; iodide of potassium, two drachms; arsenical solution, one drachm and a half; tincture of columba, two ounces; chloric ether, two drachms; water to twelve ounces: one tablespoonful after meals three times daily.

I remain, Sir, yours truly,
April, 1863. ROBT. INGLIS, M.D.

P.S.—Perhaps Mr. Boyd will state the effect of treatment shortly.

*A Priest.*—The beautiful stanzas which appeared in *The Times* of Wednesday, March 11th, were written by Dr. Evanson, of Torquay. If they had been suited to a medical periodical, we should have given them a place in THE LANCET.

WEISS v. M'KENZIE.

*To the Editor of* THE LANCET.

SIR,—The plaintiff in the above case, Martin Weiss, a member of the Jewish persuasion, styles himself Dr. Weiss upon a diploma of Licentiate of Medicine granted by the Dublin University. I beg you will inform your readers that no such diploma is granted by the Dublin University, and that every candidate requires to be a graduate in Arts previously to obtaining either a degree in Medicine or a diploma in Surgery from that University; that no member of the Jewish persuasion ever graduated in either Arts or Medicine in the Dublin University; and that the name of Martin Weiss does not appear in the Medical Register for 1863. I am, Sir, yours very truly,
April, 1863. AN IRISH GENERAL PRACTITIONER.

MAYNE v. FOWLER: CHARGE OF PLAGIARISM.

*Dr. T. B. Peacock* and *Dr. A. Meadows*, the referees appointed in the questions in dispute between Dr. Mayne and Dr. Fowler, have forwarded to us a long and elaborate report on the subject. After entering into a minute history of the transaction, they, in conclusion, say: "We are of opinion—

"1st. That the title of Dr. Fowler's work was derived from the original 'Medical Vocabulary' of Dr. Mayne, and we do not consider that the anonymous publication of the original work, the long period which had elapsed since its first appearance, or the circumstance that no second edition had been announced prior to the publication of Dr. Fowler's Vocabulary, justify the appropriation, so long as the copyright of the original work existed.

"2ndly. On the other hand, we do not find anything in Dr. Fowler's work which leads us to suppose that he has copied in his 'Medical Vocabulary' the plan of the work first published by Dr. Mayne; nor have we found such similarity in Dr. Fowler's 'Medical Vocabulary' to Dr. Mayne's 'Expository Lexicon' as would indicate that Dr. Fowler had availed himself of the use of that work in the preparation of his own. We are, therefore, of opinion that the charge of plagiarism against Dr. Fowler implied, if not directly expressed, by Dr. Mayne in the preface to the second edition of his 'Medical Vocabulary,' has not in any degree been substantiated."

*Amicus Amico.*—The lines have considerable merit; but it would not be judicious to publish them in the present phase of the matter to which they refer.

*Omicron.*—Much depends on circumstances. Any surgeon of experience would give the information required.

*Mr. J. O'Flanagan.*—There is no doubt some ground for the objections raised; but we have not space to criticise the productions of obscure authors.

A CAUTION.

*To the Editor of* THE LANCET.

SIR,—A few minutes after I left home on Wednesday last, a man called, and said he came from Apothecaries' Hall with half an ounce of nitrate of silver, which he stated I had ordered, and demanded 2s. 6d. The quantity ought to have caused suspicion; but (the Hall supplying me) it was paid for. I found some stuff rolled in the blue paper which feebly responded to the tests. Enclosed is a letter from the Hall, denying knowledge of the matter.

I take the liberty to write to you, and enclose my card, as it may be tried on with others, and it is not pleasant to be "done" out of even half-a-crown.

I am, Sir, yours obediently,
April 7th, 1863. J. M.

"Apothecaries' Hall, London, April 6th, 1863.

"SIR,—I cannot find that we have forwarded you any argent. nitras, and so, doubtless, you have been victimized. I beg to thank you for your communication.

"I am, Sir, (for the Society,)
"Your obedient and obliged servant,
"Dr. M." "T. SINGLE.

*Dentist.*—An organ of the branch of the profession to which our correspondent belongs informs us that, as far as the Odontological Society is concerned, the question of amalgamation is decided, and that by an almost unanimous expression of approval of the members present, called together for the purpose of deciding the question. It is likely that at the next meeting or the following in May the union of the members will take place.

*L. D. S., R. C. S.*—If a short description be sent, it shall be inserted.

MR. PRATT'S LITHOTRITY FORCEPS.

*To the Editor of* THE LANCET.

SIR,—It is satisfactory to find that Mr. Pratt concedes that a "somewhat similar instrument was made for removing calculi or fragments from the male urethra." I can only express my astonishment that it should have escaped the observation of an instrument-maker of twenty-five years' experience. Why, Sir, the two instruments are in all essentials evidently the same.

Had Mr. Pratt consulted any of the old houses in the trade, they would have enlightened him and thus mere waste of words might have been saved. I still maintain that there is no novelty either in the application or the construction, and regret that so much of your valuable space should have been occupied with a thing so obvious that the only wonder is how anybody could introduce to the profession, as something new, an old and recognised form of instrument, used when occasion requires it.

I am, Sir, your obedient servant,
Giltspur-street, City, April, 1863. J. FERGUSON.

*P.C.S. Ed.*—It has already been stated in this journal that turpentine, administered rapidly and freely by the lungs, produces effects very similar to those resulting from the employment of chloroform.

*Experimenter.*—Tannic acid and tannin have been stated to be amongst the better antidotes to poisoning by strychnia.

*Mr. Charles Saunders.*—It is not unlikely, if there be no disease.

JUDICIAL SLANDER.

*To the Editor of* THE LANCET.

SIR,—I cannot understand why the honour and reputation of the whole body of medical men should be condemned on account of the weakness or guilt of one or a few of their number, as was lately done by Baron Martin in the late case of Evan Thomas, of Manchester. If such sweeping conclusions are come to, and held before the public, undefended, what will become of our standing in the eyes of the world; and especially by one holding so prominent a position as a judge on the bench, who it would be expected would hold a neutral position in such matters, or at least not give voice to such words as would act detrimentally to either one party or the other, plaintiff or defendant, and not influence a jury's verdict by language that would almost betray a personal animosity in the matter. Might we not with equal injustice condemn the whole body of clergy and members of the bar as being unworthy of trust, because from time to time a few of their number are convicted for crime?

I am, Sir, yours, &c.,
Manchester, April, 1863. ONE PRESENT AT THE TRIAL.

*One Interested.*—We do not know any details of the remedy. We read, however, in the *Salut Public*, of Lyons, March 31st, that the discoverer, a pharmacien of Lyons, had received a silver medal from the King of Italy for his success, and that the young Queen of Portugal had most advantageously employed the agent against sea sickness. What scientific value is to be attached to these favours from crowned heads, we leave our correspondent to determine for himself.

*Volunteer, late Royal Staff Medical Officer.*—The communication is written in so bad a style and spirit as to render it unfit for insertion in our pages.

### SANITARY DEFECTS IN SHIPS OF WAR.

*To the Editor of* THE LANCET.

SIR,—Dr. Milroy deserves the thanks of the profession, and particularly naval medical officers, for his letter in THE LANCET of the 4th April, and for his previous inquiries and valuable observations on the sanitary condition of the Royal Navy.

I do not think the names of the Ventilation Committee have been published; but I have reason to believe that the Admiralty have at length been aroused to the great difficulty and paramount importance of the subject, especially in reference to the present transition state and reconstruction of the Navy.

In the *Royal Oak*, I am told, the ventilation of all parts of the ship, including the decks, engine-room, and stoke-hold, is very good; this being secured in a great measure by open gratings, &c., from plans proposed by Captain Fanshawe and Mr. Baker, chief engineer of Chatham Dockyard. In the *St. Vincent* training ship, Portsmouth, I hear that a patent ventilating apparatus has been recently fitted with the best effects; but I am not acquainted with its precise arrangements.

I hope you may receive other answers to Dr. Milroy's letter, giving fuller information as to what measures may have been recommended by the Committee, and adopted by the Admiralty.

I am, Sir, your obedient servant,

JOHN ROSE, A.M., M.D.,
Kidderminster, April, 1863. Surgeon, Royal Navy.

*To the Editor of* THE LANCET.

SIR,—A letter on this subject was inserted in the last number of THE LANCET. To this communication I am anxious to add a few remarks.

The writer, Dr. Milroy, quotes the following passage from the speech of Lord C. Paget whilst bringing forward the naval estimates for last year:—"Everybody who has been on board ship will know that the state of the atmosphere in the lower decks is sufficient to produce almost any kind of disease, especially phthisis and fever, as has been shown by the returns from the Mediterranean fleet." And in the debate that followed, Sir J. Pakington is reported to have said—"I have received a communication lately that four of our ships of war on the West India station suffered so severely in 1861 from yellow fever, that fully one-half of their crews were attacked with the disease, and that a very large number of the cases proved fatal, owing, in a great measure, to the *impure atmosphere* of the between decks." And Sir J. Elphinstone added—"Last September I went on board one of these vessels. The temperature on the upper deck was 50°; on the lower deck I found the thermometer at 72°, close to where a man was lying in his hammock." (This must have been a ship in England, not in the West Indies, as the temperature in the latter situation would have been 80°, not 50°, on the upper deck.)

Dr. Milroy thinks that "by giving wide circulation to these observations on this important subject, you may greatly promote the speedy adoption of a much-needed reform in our men-of-war, by which the health of the Navy will be *infallibly* increased." What may be the result of the promulgation of these opinions I am, of course, ignorant; but believing them to be erroneous, I must enter my humble protest against their adoption by the profession to which I belong. My reasons for drawing this conclusion will presently appear.

As regards the opinion expressed by Lord C. Paget, respecting the prevalence of phthisis in ships, I do not think it necessary to offer any remark, unless his Lordship, or the authority from whom he quotes, can explain why the same disease should prevail so much among the negroes in the West India islands, as also among those living in the hilly districts of Jamaica, in solitary and isolated huts. As these are generally made of bamboo, through the crevices of which the air penetrates as it would through a sieve, the contamination of the atmosphere in such a situation is utterly impossible either from within or from without.

As respects the prevalence of fever from the same cause, I would also ask how it happens that fever is more prevalent in the uninhabited districts of Italy than in the towns? As also why intermittent fever prevails principally in the elevated, well ventilated, and thinly inhabited parts of Rome, whilst it is almost unknown in the *thickly populated*, narrow, and filthy streets of the Ghetto, surrounded by every kind of abomination? When these questions are answered, I will then inform his Lordship why fever is so prevalent in the Mediterranean fleet.

Let us now turn to the conclusion of Sir J. Pakington, that the outbreak of yellow fever in the ships in the West Indies was to be referred to "the impure atmosphere of the between decks." Without waiting to ask what are the facts on which this opinion has been founded, I would merely observe that the conclusion must be an entirely gratuitous one. Yellow fever is not confined to the crews of ships, or to the crowded habitations of man. It will attack, with the same intensity, the solitary mariner in his open barque, as also the sentinel on his post. If the crowded state of the ships was the cause of the outbreak of fever in them, how are we to account for its appearance under the following circumstances?—The barracks at Antigua are situated on a range of hills that overlook the harbour, and it was no uncommon thing, as we are informed by Dr. Ferguson, during the occupation of that island by white troops, for a soldier to descend *in perfect health* to take guard at the dockyard, and to be attacked *while on post* with furious delirium, and to expire in twenty-four hours in all the horrors of black vomit. Now, there were no crowded habitations here—no want of ventilation in such a situation. On the contrary, the dockyard, situated on one side of a small harbour, is open to the breezes of the broad Atlantic. It may, however, be said that the air below was not so pure as that above, and hence the cause of the attack. By purity, I, of course, mean the presence of the normal quantity of oxygen; by impurity, the contamination of the air by the breath of man, the deterioration of the air by other causes not being under discussion. I shall therefore take another example, where no such differences exist. To the east of Port of Spain, in the Island of Trinidad, there is a limestone hill, called La Ventelle Hill, overlooking one of the most magnificent bays in the world. On account of its commanding situation, a military post was established there during the war; but this was speedily abandoned, it being death for a white soldier to sleep there for a single night. The summit of this hill, 400 feet high, is, in fact, so pestiferous that not even a creole Spaniard, who possesses a comparative immunity from fever, could sleep there with impunity for a single night. Now, there was no deterioration of the atmosphere by man in this instance, it being an uninhabited district; while as it lies to the windward of Port of Spain, over which the trade wind blows constantly, there can be no want of ventilation or of fresh air. On the other hand, these very individuals could have remained in the barracks, situated on the leeward side of the town, and therefore imperfectly ventilated, without experiencing any attack.

If, again, overcrowding between the decks of a ship can produce such disastrous results, how is it, I would ask, that yellow fever never appears in ships while passing the line, although becalmed there frequently for weeks? Such an occurrence, at least, is never witnessed unless the ship has left a spot where the disease is prevailing, and has thus taken the seeds of the disease with it; and yet all the circumstances supposed to predispose to disease here exist in their greatest intensity, more particularly heat and moisture—the effect of a vertical sun and constant heavy rain. What false logic, then, to assert that the very conditions that are never known to produce disease in one instance, are the chief agents of its production in another? As it is an axiom in physics that like effects must be produced by the operation of like causes, we may conclude that the circumstances referred to are not the cause of the outbreak of fever in ships. It only remains, therefore, to ascertain what is the real and efficient cause.

Fearing, however, that I have already occupied too much of your valuable space, I shall reserve the discussion of this part of the subject until my next communication.

I am, Sir, your obedient servant,

London, April, 1863. J. PARKIN, M.D.

*A Seven Years' Subscriber.*—The Society for the Relief of Widows and Orphans of Medical Men; but its benefits are limited to London and its neighbourhood.

*Mr. Wm. Ferguson*, (Bridlington.)—We are not responsible for the mistake. The name appeared in the official list.

*Fred*, (Taunton.)—1. A coarse surface may be polished by rubbing it with pumice stone, or, as on board ship, by rubbing it with sand or canvas.—2. "Fred" writes a tolerable hand.

### FOUL BREATH.

*To the Editor of* THE LANCET.

SIR,—Will you or any of your readers be good enough to inform me what I can do for the following case?—

A young married gentleman has for two or three years past literally suffered from foulness of the breath. It has been almost continually getting worse and worse, until now he is rendered a positive nuisance to himself and his friends. Its effect on his spirits is such as to make him absolutely shun society. He almost dreads to hold conversation with anyone, unless from opposite sides of the room he may be sitting in. As he is highly intellectual and accomplished, it may be easily imagined what a distressing state this must be, especially as it has no apparent cause whatever. His appetite is invariably good. He never suffers from indigestion in any shape or form, nor indeed from anything whatever, and yet his tongue is always coated, but much worse in the morning on awaking than at any other time. Sometimes it is covered with a thick, white, creamy fur; at other times the organ is dry and brownish. He has undergone various courses of treatment: the mild mercurial preparations, the tincture of sesquichloride of iron, alkaline mixtures, and lastly the nitro-muriatic acid, from the latter only of which did he derive the smallest benefit, and that only trifling and temporary.

If any of your readers would kindly offer a suggestion as to treatment, it would be esteemed a very great favour by,

April, 1863. A VERY CONSTANT READER.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. Hughes Bennett; Dr. Habershon; Dr. Millar; Dr. Hicks; Mr. Robinson, Dover; Mr. Carter, Stroud; Mr. Corden, Godalming, (with enclosure;) Mr. Ferguson, Bridlington, (with enclosure;) Mr. Pfolliott, Bombay; Dr. M'Nab, Glasgow, (with enclosure;) Mr. Douglas, (with enclosure;) Mr. Gascoyen; Mr. W. Smith, Chesterfield; Dr. Parkin; Mr. Downes; Mr. J. Ferguson; Dr. Buzzard; Mr. Lowndes; Mr. Rooke, Cheltenham; Mr. Chapman, Talywain, (with enclosure;) Mr. Ballus, Bristol; Mr. J. Atkinson, Newcastle; Mr. A. Mayer, Snainton, (with enclosure;) Mr. Martin, Liverpool, (with enclosure;) Dr. Reed; Mr. Knaggs, Huddersfield; Dr. M'Neigh, Coventry; Mr. F. Mason; Mr. E. Martin, Emsworth, (with enclosure;) Mr. Dewes, Coventry, (with enclosure;) Mr. Saunders; Mr. Holmes Coote; Dr. Rose, Kidderminster; Mr. R. O'Leary, Smethwick, (with enclosure;) Mr. Judge, (with enclosure;) Dr. Wolfe, Aberdeen; Dr. Hoares; Dr. Anderson, Edinburgh; Mr. G. Smith, Axbridge; Dr. Barder, Clifton; Mr. Groves, Barton, (with enclosure;) Mr. Fletcher; Mr. Blacklock, Brighton, (with enclosure;) Mr. Ingram, Kelton; Mr. Bower, St. Denis, (with enclosure;) Mr. Greaves; Mr. J. Candy, Astonfield; Mr. Parsell, Wolverhampton; Mr. Stenning, (with enclosure;) Dr. Davey, Northwoods; Mr. Pitts, Wetherby, (with enclosure;) Mr. Sutton, Timberland; Mr. Williams, (with enclosure;) Dr. Bennett, Liverpool; Mr. Middlemist; Mr. Orridge; An Indignant Civilian; Alpha, (with enclosure;) A. W. D.; A Caution; A. B. C., (with enclosure;) An Irish General Practitioner; J. W., (with enclosure;) A Volunteer; Spero Meliora; One of the Oppressed; A Seven Years' Subscriber; Medical Student, Holytown; J. M.; Sigma; Ethnological Society; J. A. S.; Omicron; A very Constant Reader; Amicus Amico; Harveian Society; P., (with enclosure;) Fred; H. W. B., (with enclosure;) Medical Society of London; &c. &c.


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